



Canon
AE-1
Canon
AE-1
Canon
AE-1
Canon
AE-1
Canon
AE-1
Canon
AE-1
Canon
AE-1



RELEASE
BUTTON

WIND LEVER

HOT SHOE

REWIND KNOB--
PULL UP TO
OPEN BACK

Canon

EF

LENS-LOCKING
RING--TURN
COUNTERCLOCKWISE
TO REMOVE LENS

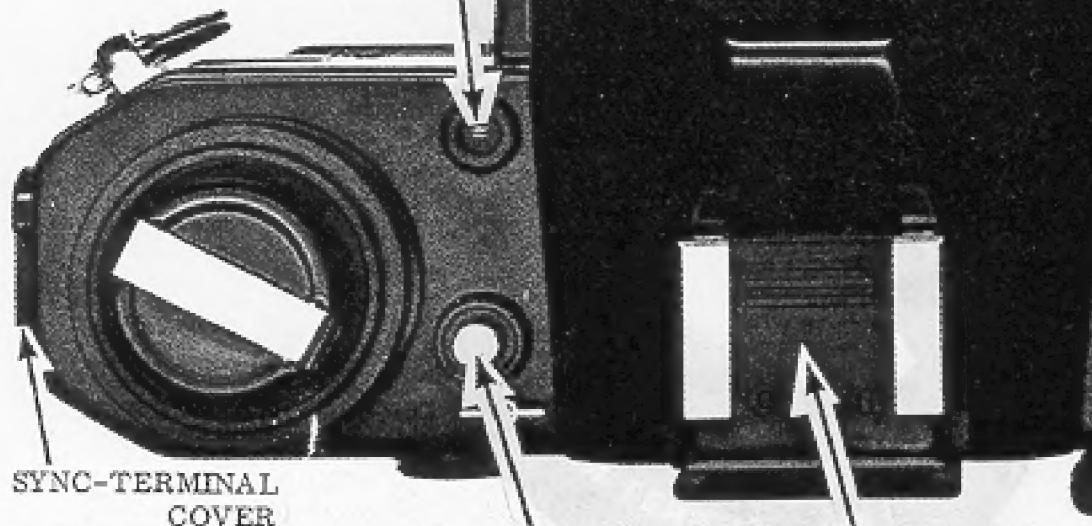
COUPLING POST
FOR FLASH RING
OF SPEEDLITE 133D

GREEN CIRCLE FOR AUTOMATIC-DIAPHRAGM CONTROL

DIAPHRAGM-SETTING RING

LED (LIGHT-EMITTING DIODE)

FLASHES DURING SLOW EXPOSURES AND WHEN YOU DEPRESS BATTERY-TEST BUTTON ON BOTTOM OF CAMERA



DIAPHRAGM-SETTING-RING LOCK BUTTON--DEPRESS TO SELECT AUTOMATIC SETTING

SHUTTER-SPEED DIAL

COUNTER WINDOW

HOT-SHOE COVER

WIND LEVER IN "STORAGE" POSITION

FILM-SPEED KNOB -- LIFT AND TURN TO SET FILM SPEED



100 200 100 50 25 12 1

NORMAL



CATS-NORMAL SELECTOR

INTENTIONAL DOUBLE-EXPOSURE BUTTON

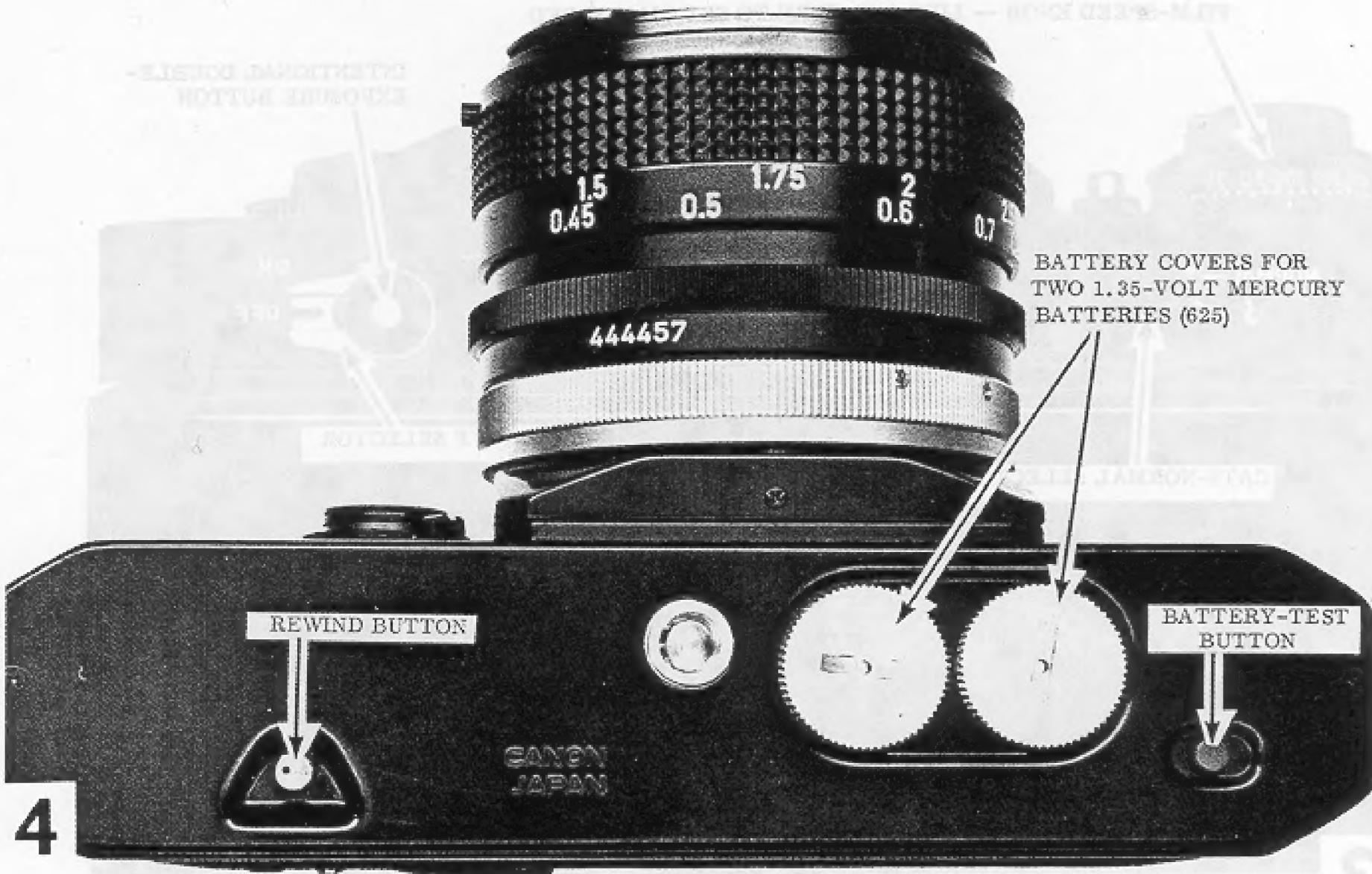


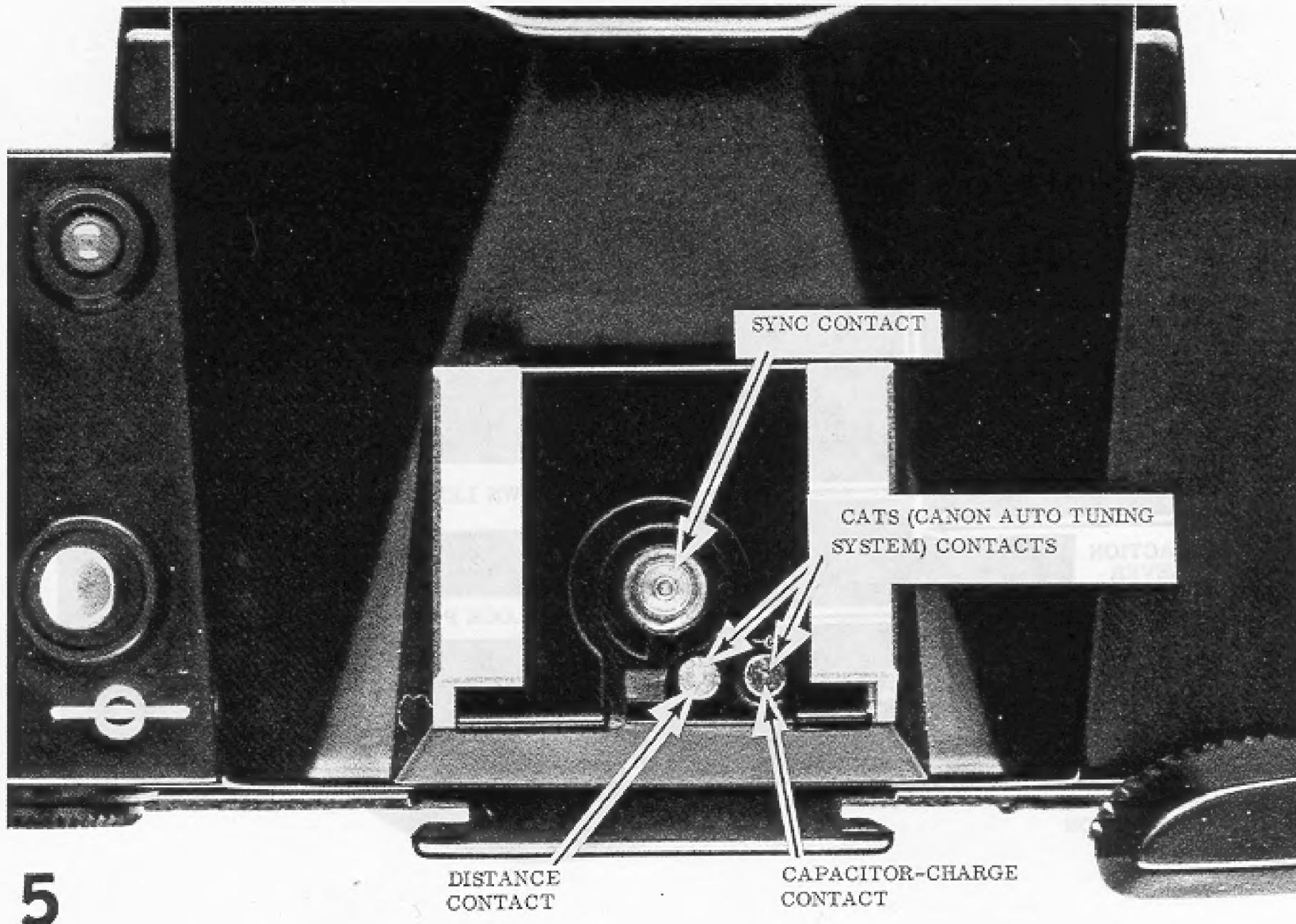
ON
OFF

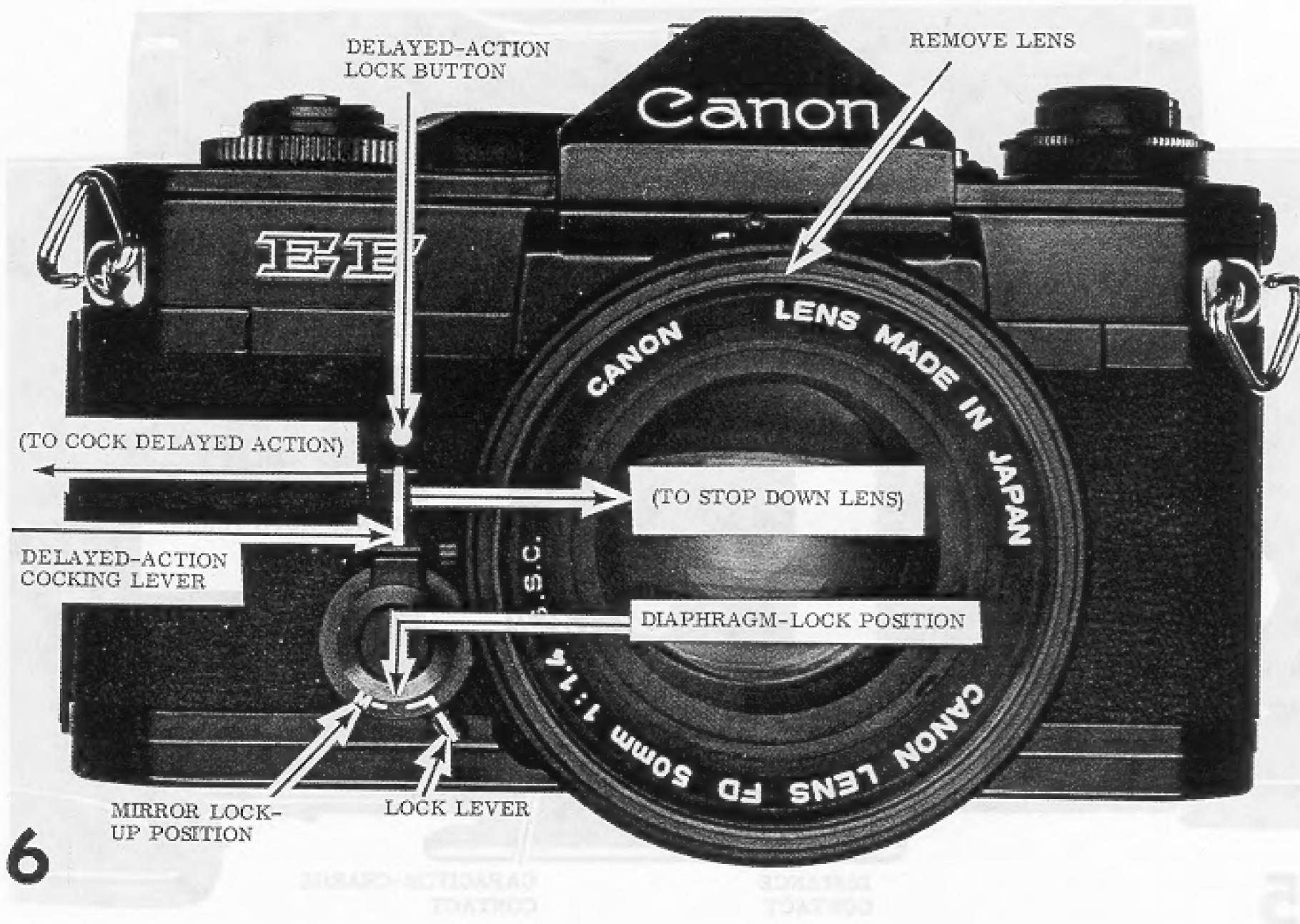
撮影時以外はメインスイッチをOFFにしてください。

AFTER USING, TURN THE CAMERA OFF.

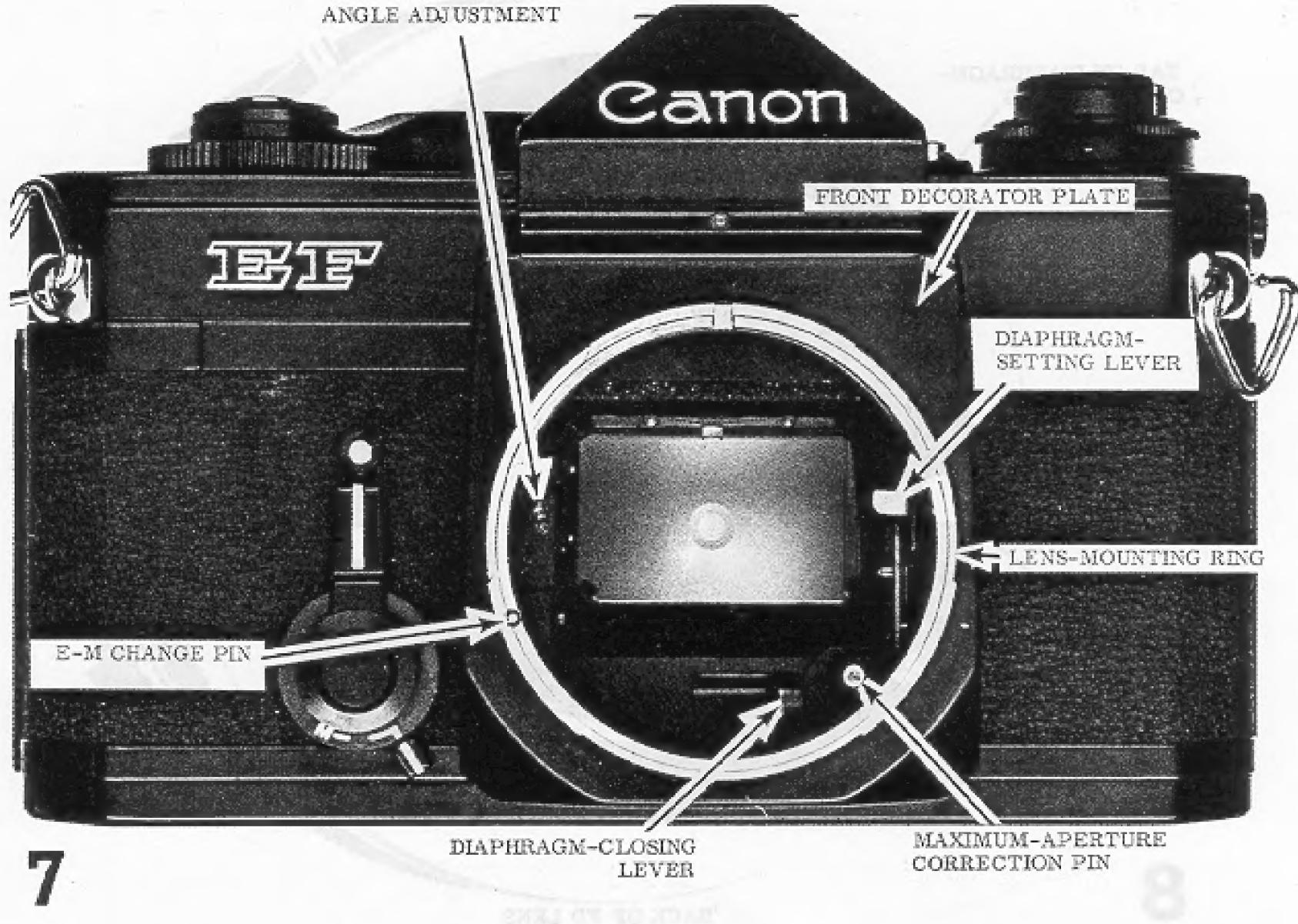
ON-OFF SELECTOR







45-DEGREE MIRROR-
ANGLE ADJUSTMENT



7

8

Check the flange-focal distance (42.14 mm) by measuring between the front surface of the lens-mounting ring and the film rails. To make an adjustment, first remove the screw at the bottom of the front decorator plate. Lift off the front decorator plate and remove the four screws holding the lens-mounting ring. You can now add or remove spacers to adjust the flange-focal distance and/or parallelism.

TAB ON DIAPHRAGM-COUPLING RING

FULL-OPEN METERING POST

TAB OF DIAPHRAGM-OPENING RING

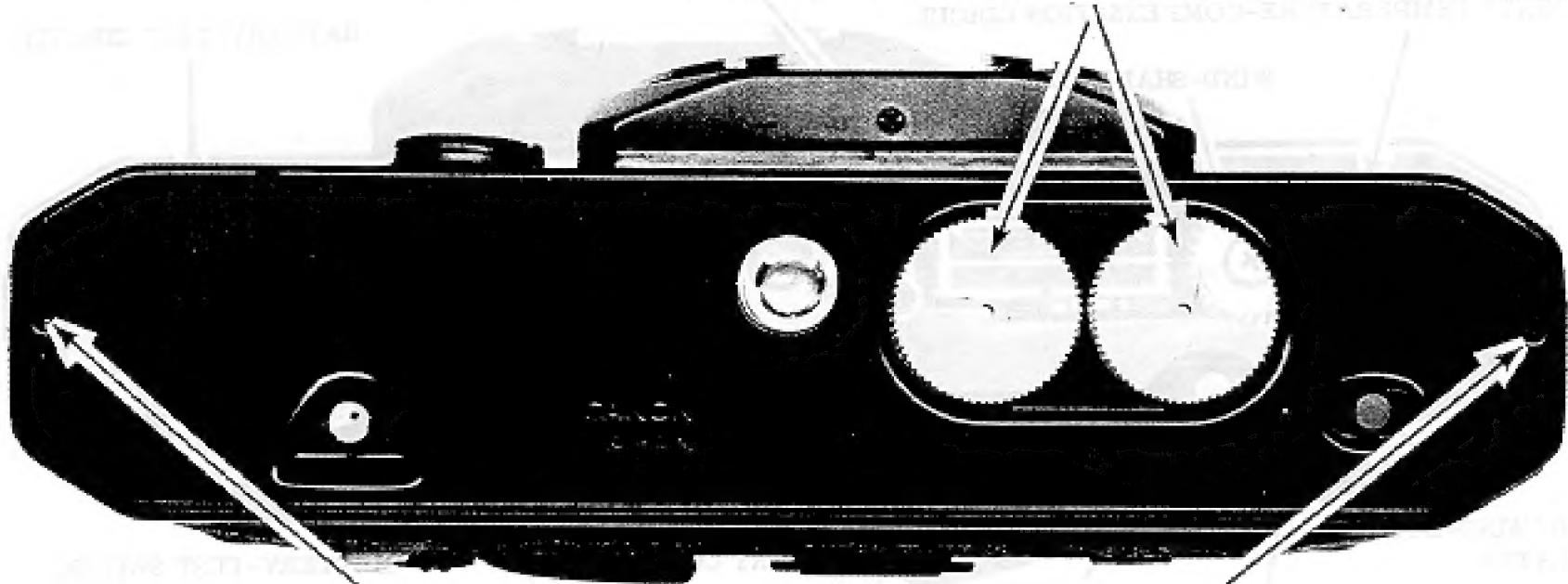
N101

AUTO PIN

CANON-MOUNT PLATE
LEVEL

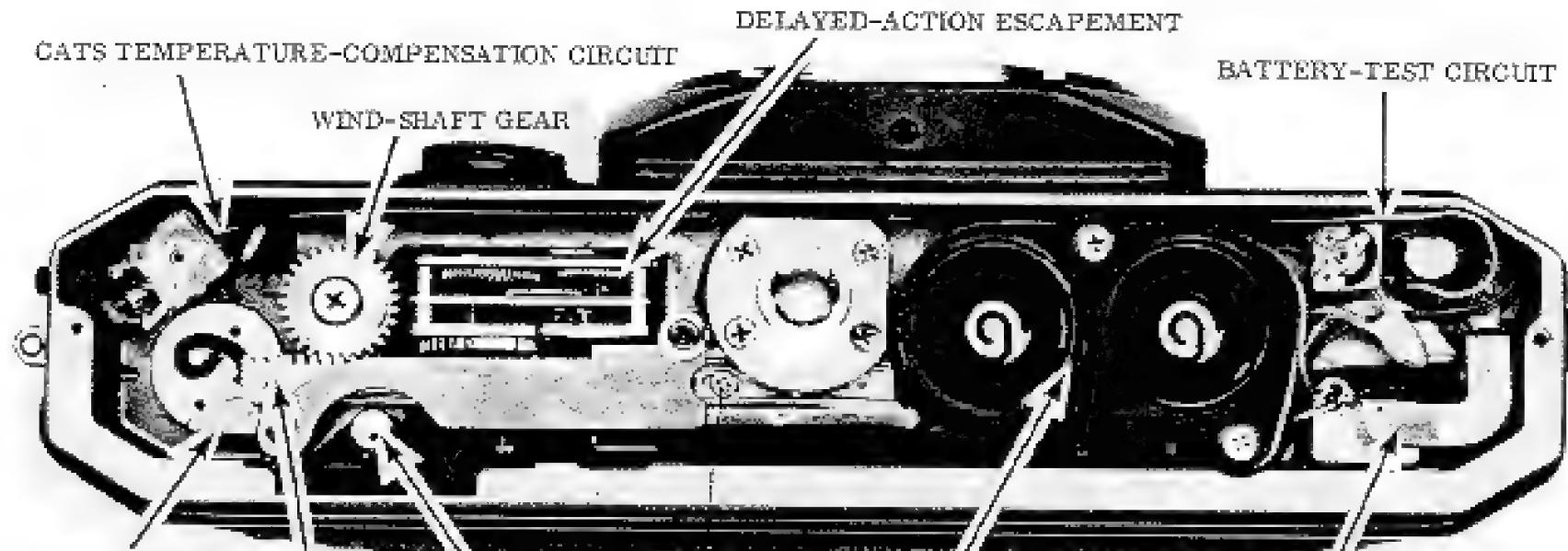
BACK OF FD LENS

1. REMOVE BATTERY-COMPARTMENT COVERS AND BATTERIES



2. REMOVE TWO SCREWS AND LIFT OFF BOTTOM PLATE

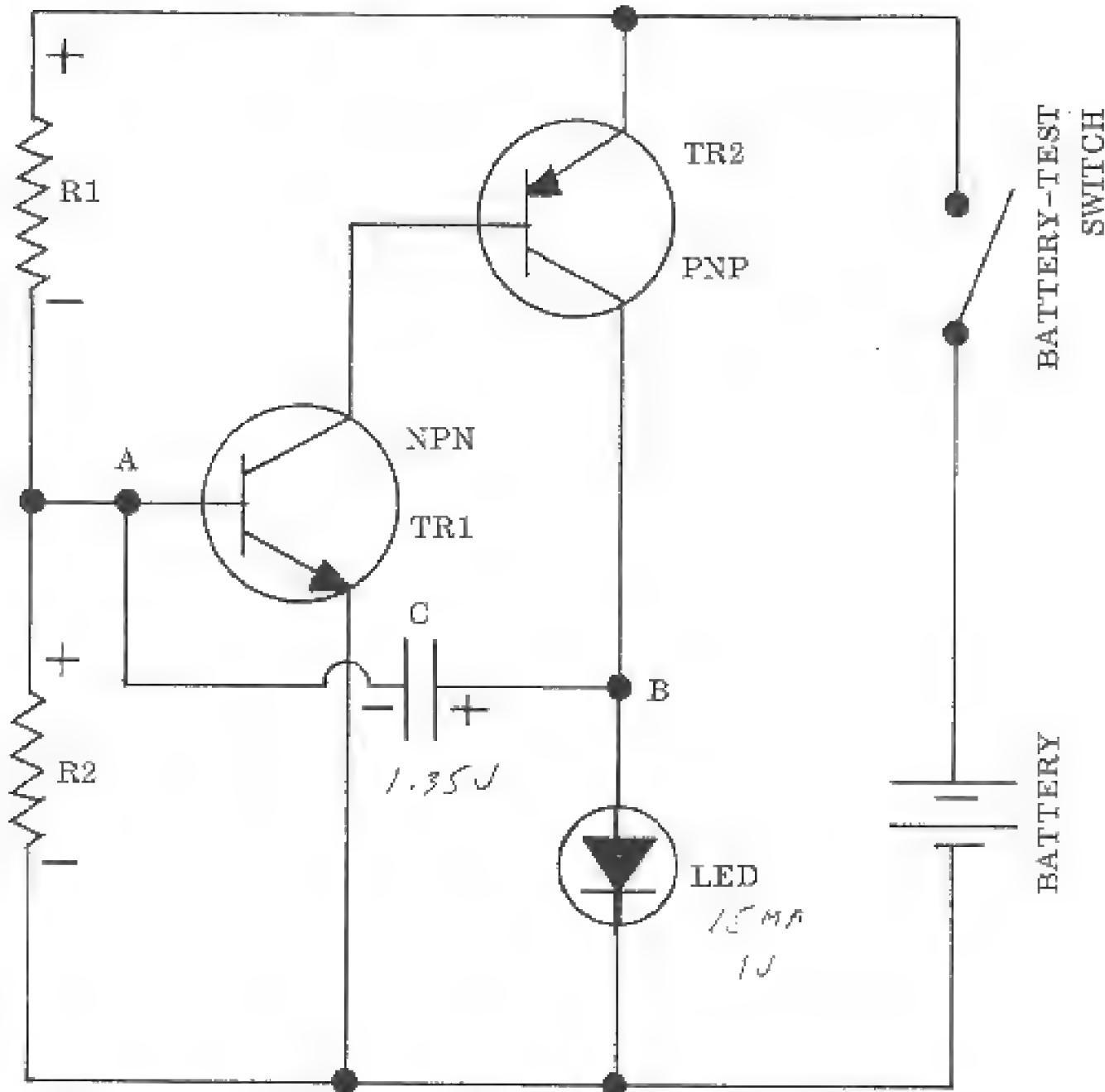
CAUTION: BATTERY-TEST BUTTON WILL BE LOOSE WHEN
YOU LIFT OFF BOTTOM PLATE



10

adjusted for overtravel or undertravel
(cocking)

BASIC LED CIRCUIT

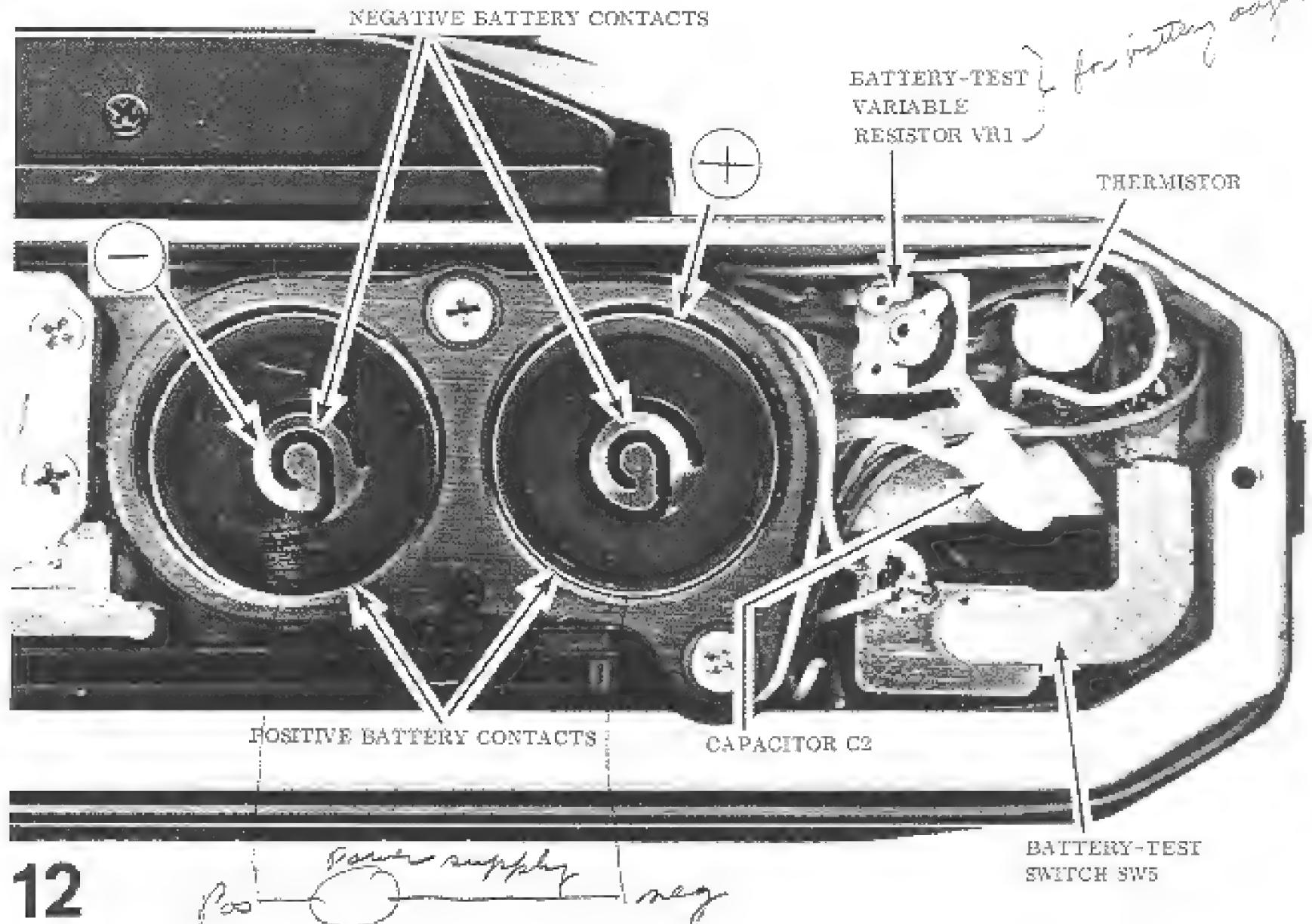


11

on-off Ratio 8:1

Current drawn - 1.9 mA

Check insulation on battery compartment



12

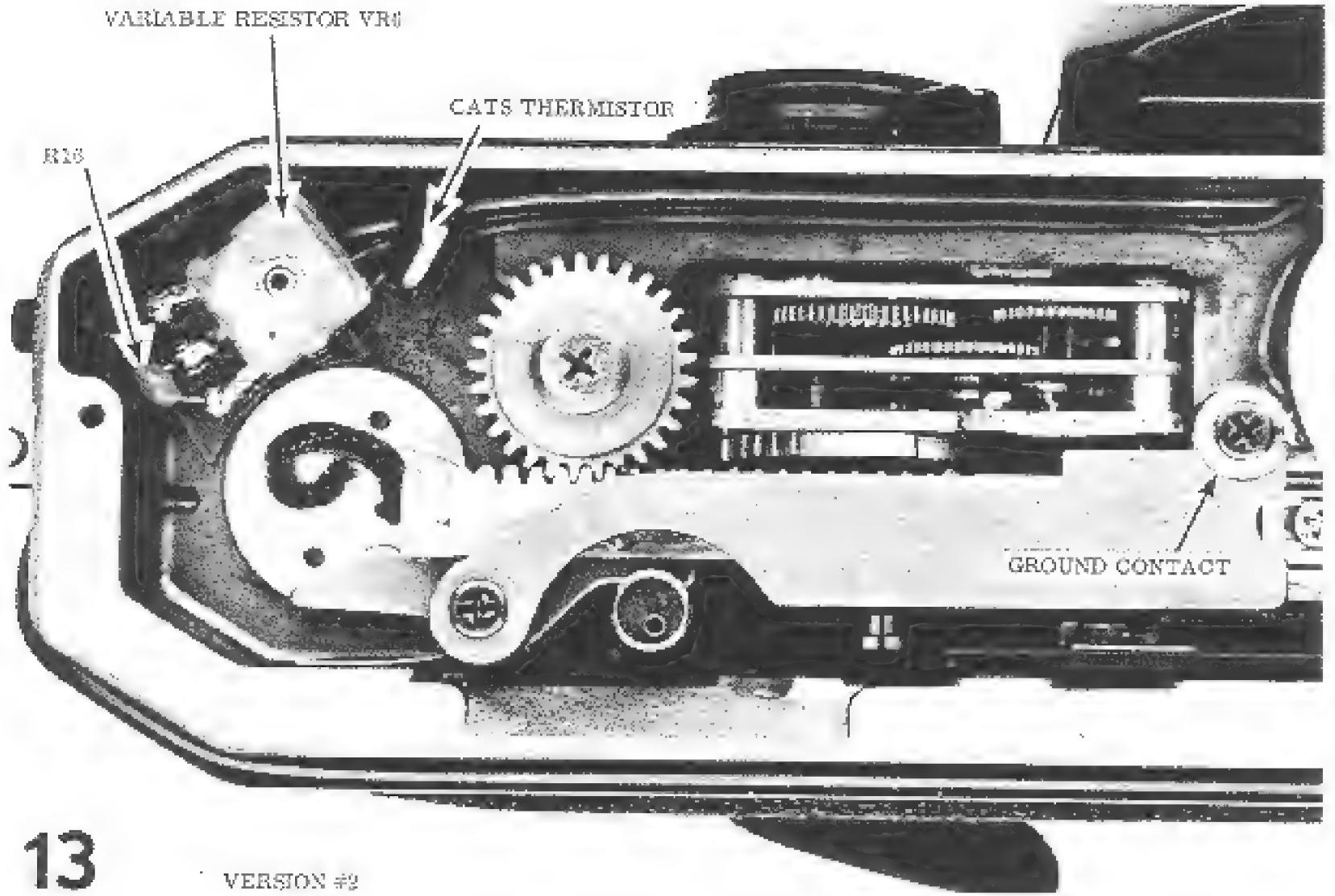
Power supply neg

BATTERY-TEST
SWITCH SW5

BATTERY-TEST-CIRCUIT ADJUSTMENT: Hook a DC power supply to the battery compartment as shown by the polarity indications. With the power supply set at 2.31 volts, the LED should operate when you close the battery-test switch; the LED should not operate at 2.26 volts. Make the adjustment with the battery-test variable resistor VR1.

If battery runs down fast - take off battery holder +
pipe underside (maybe shorted)





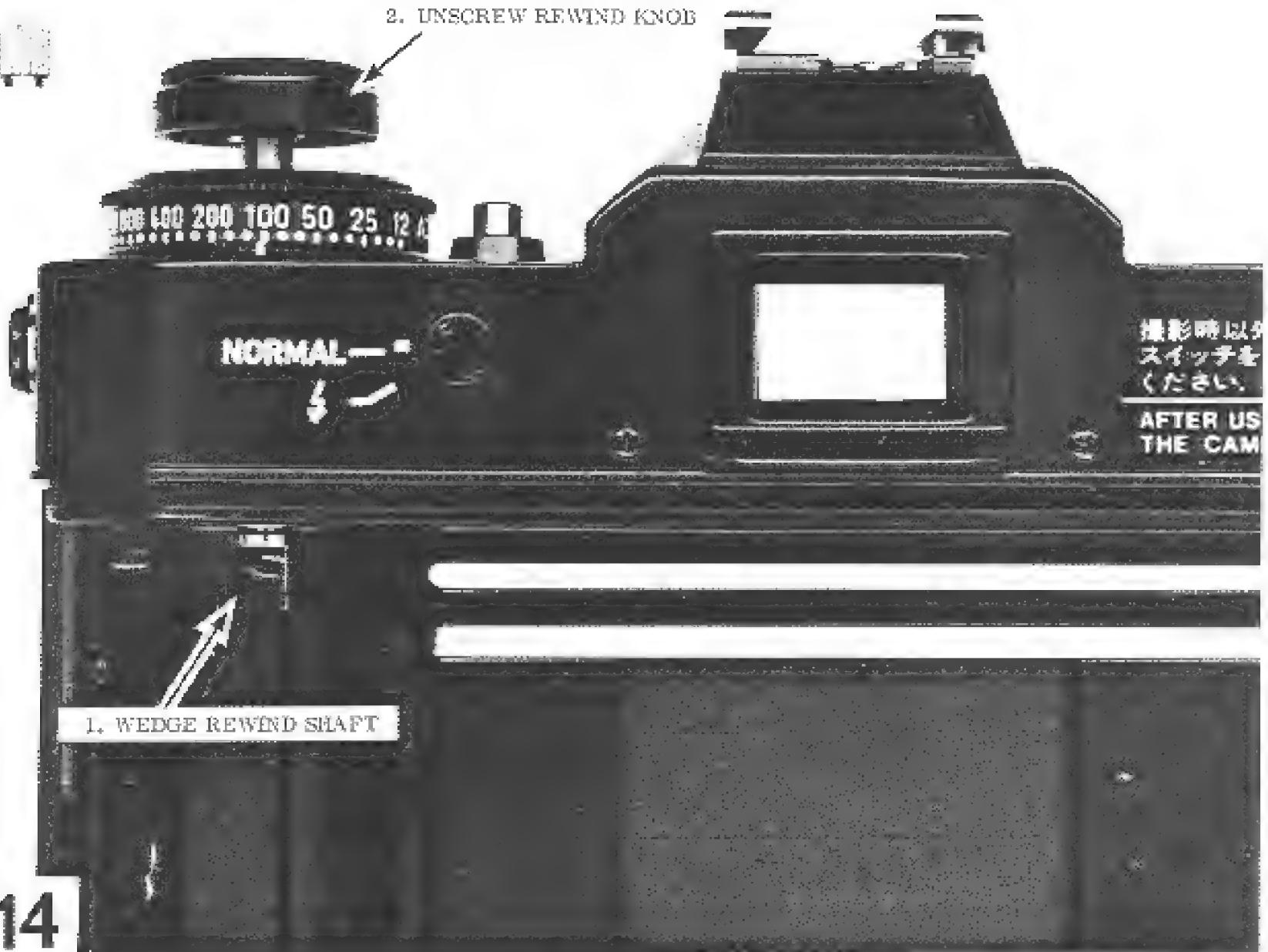
13

VERSION #2

The original Canon EF (version #1) does not have the CATS temperature-compensation circuit. The temperature-compensation circuit was added as a modification to the model illustrated (version #2). Later models (versions #3 and #4) have the thermistor and the fixed resistor at the top of the camera; in these cameras, the only part on the circuit board shown is the variable resistor VR6.

The red wire connects resistor VR6 to ground in the model illustrated. Later models use a screw to hold the VR6 circuit board. So the screw acts as a ground connection and eliminates the need for the red wire.





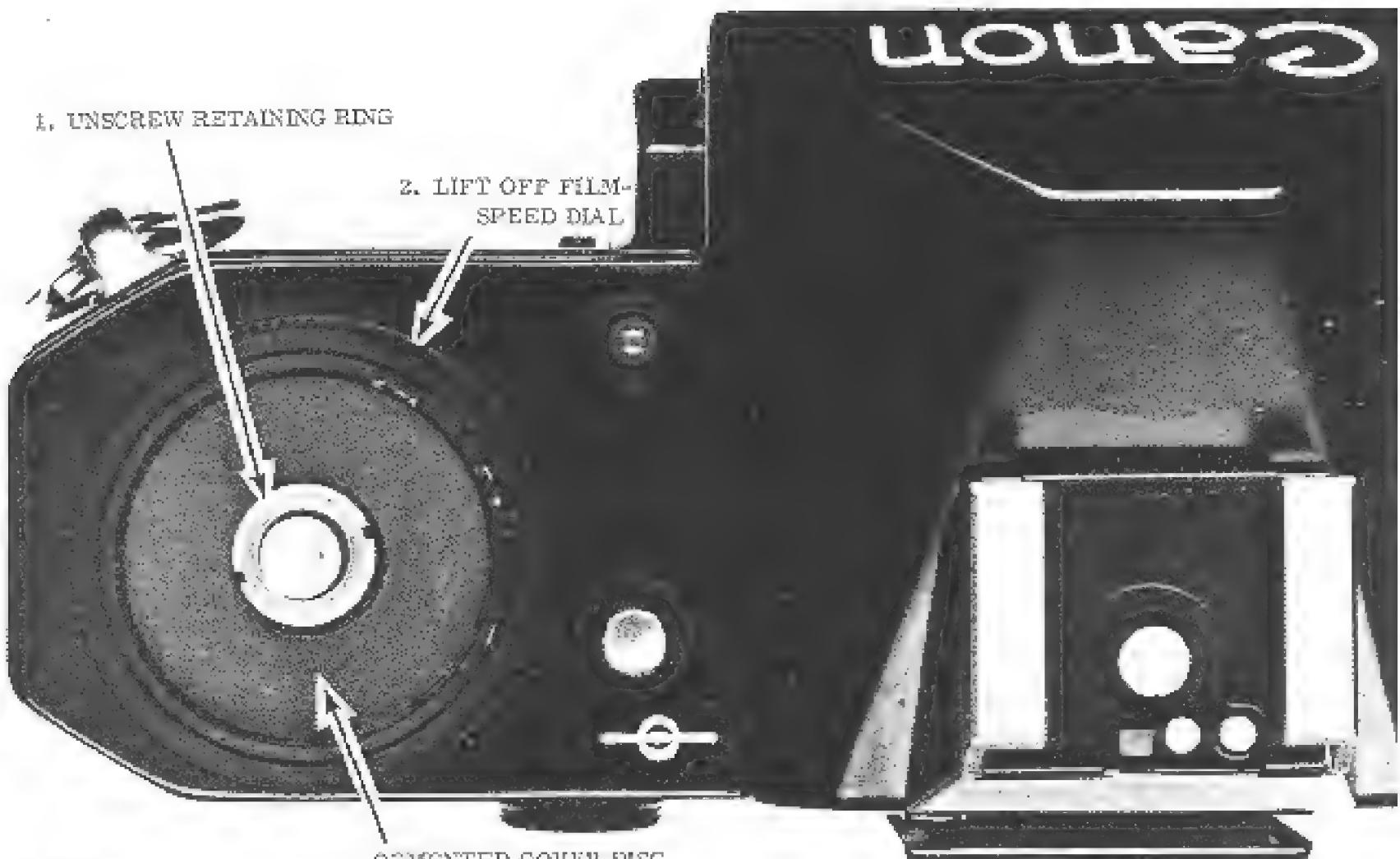
14

Disassembly

ASA 100

PULB

on-off selector off

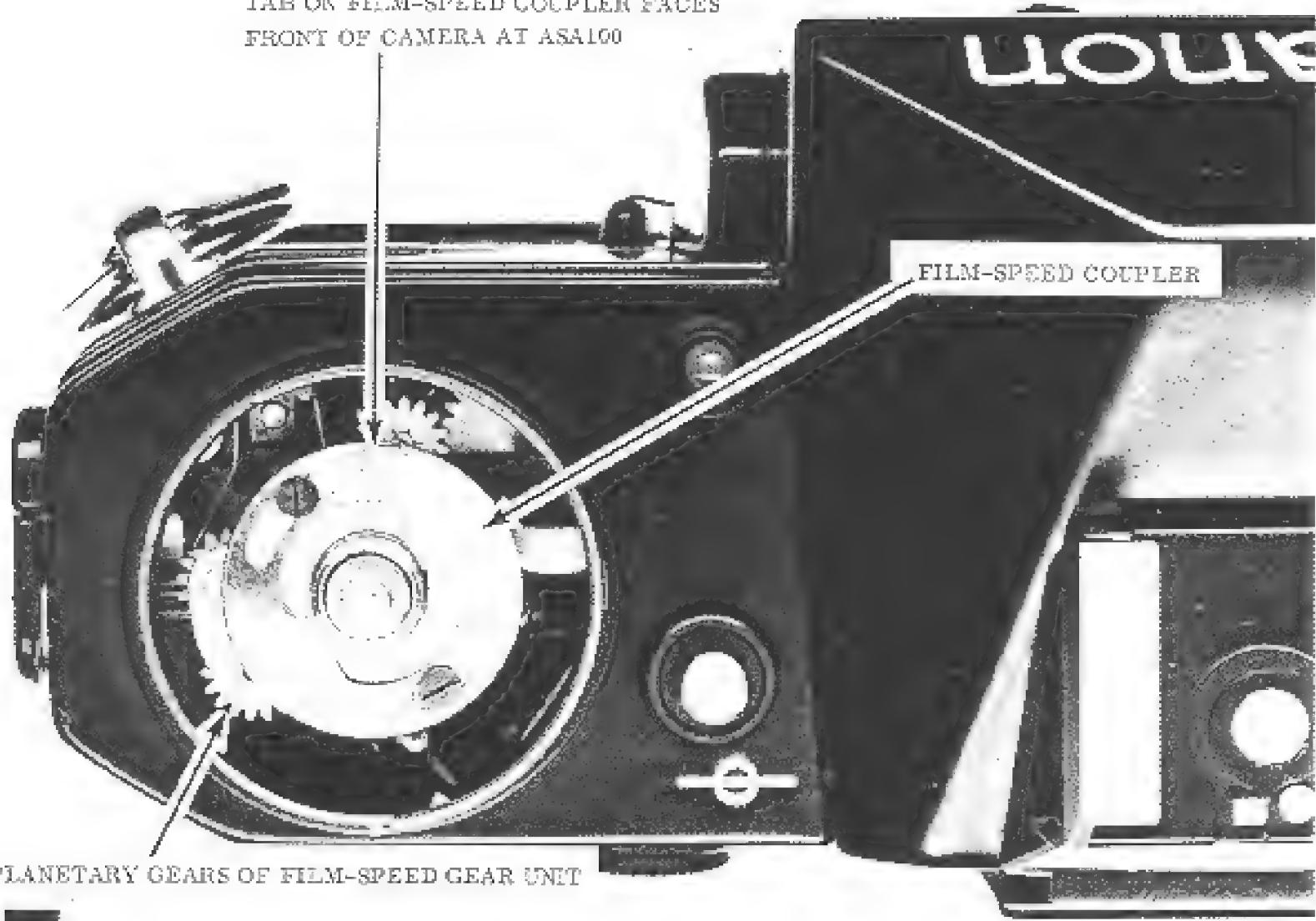


FILM-SPEED DIAL WITH CEMENTED
COVER DISC REMOVED

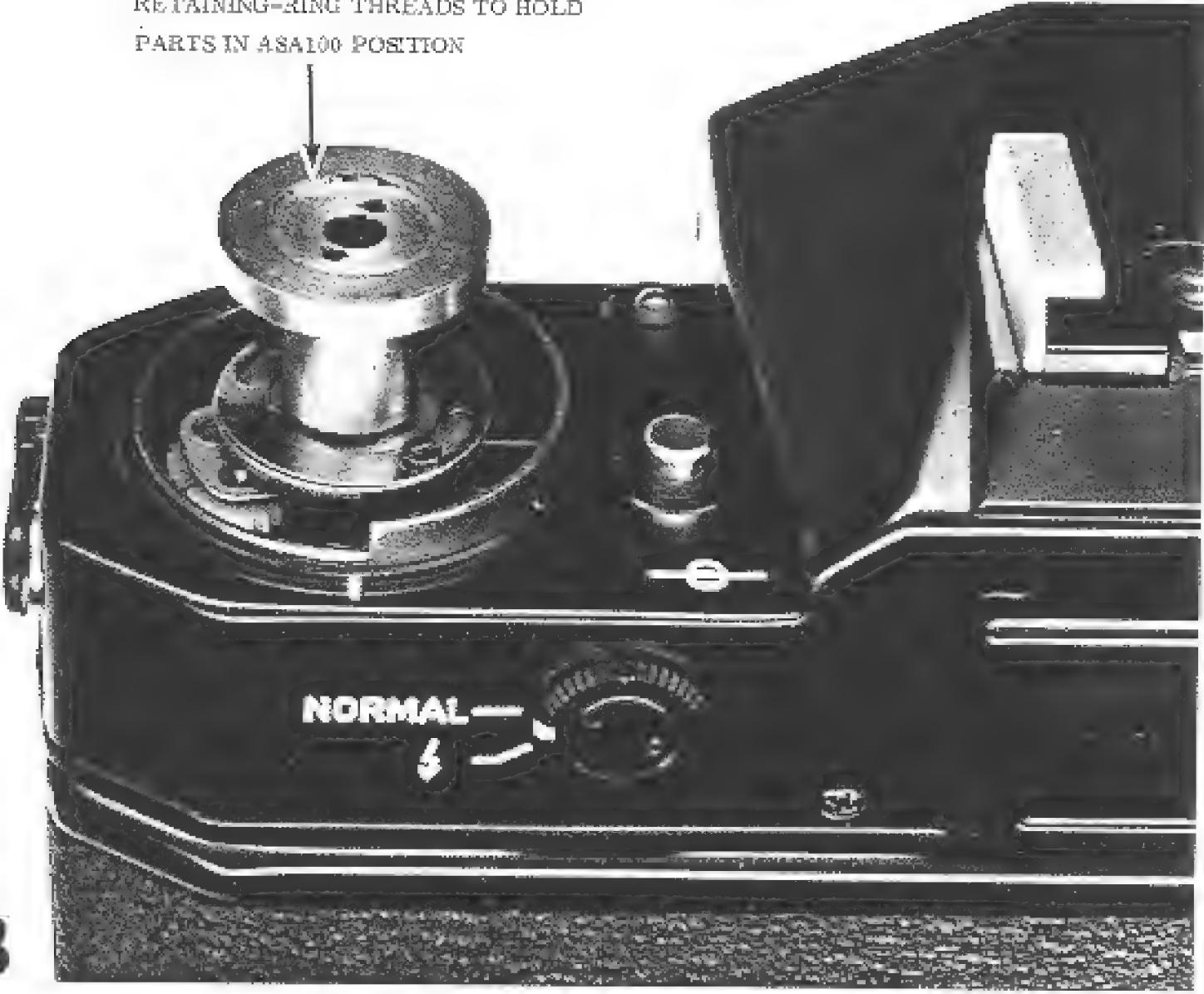
FORK ON FILM-SPEED DIAL STRADDLES TAB ON FILM-SPEED COUPLER

SCREWS FOR MINOR ADJUSTMENTS ONCE TOP COVER IS INSTALLED

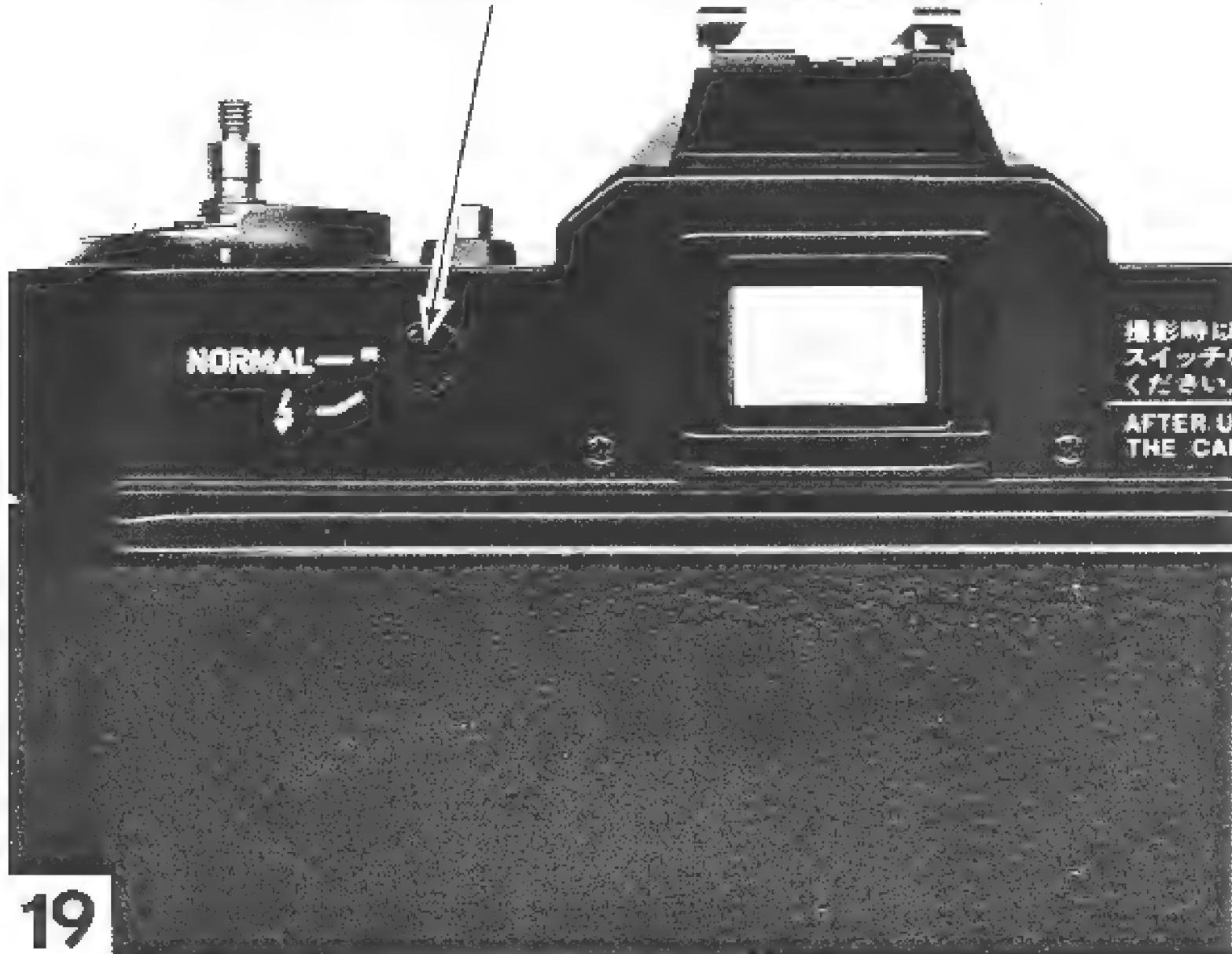
TAB ON FILM-SPEED COUPLER FACES
FRONT OF CAMERA AT ASA100

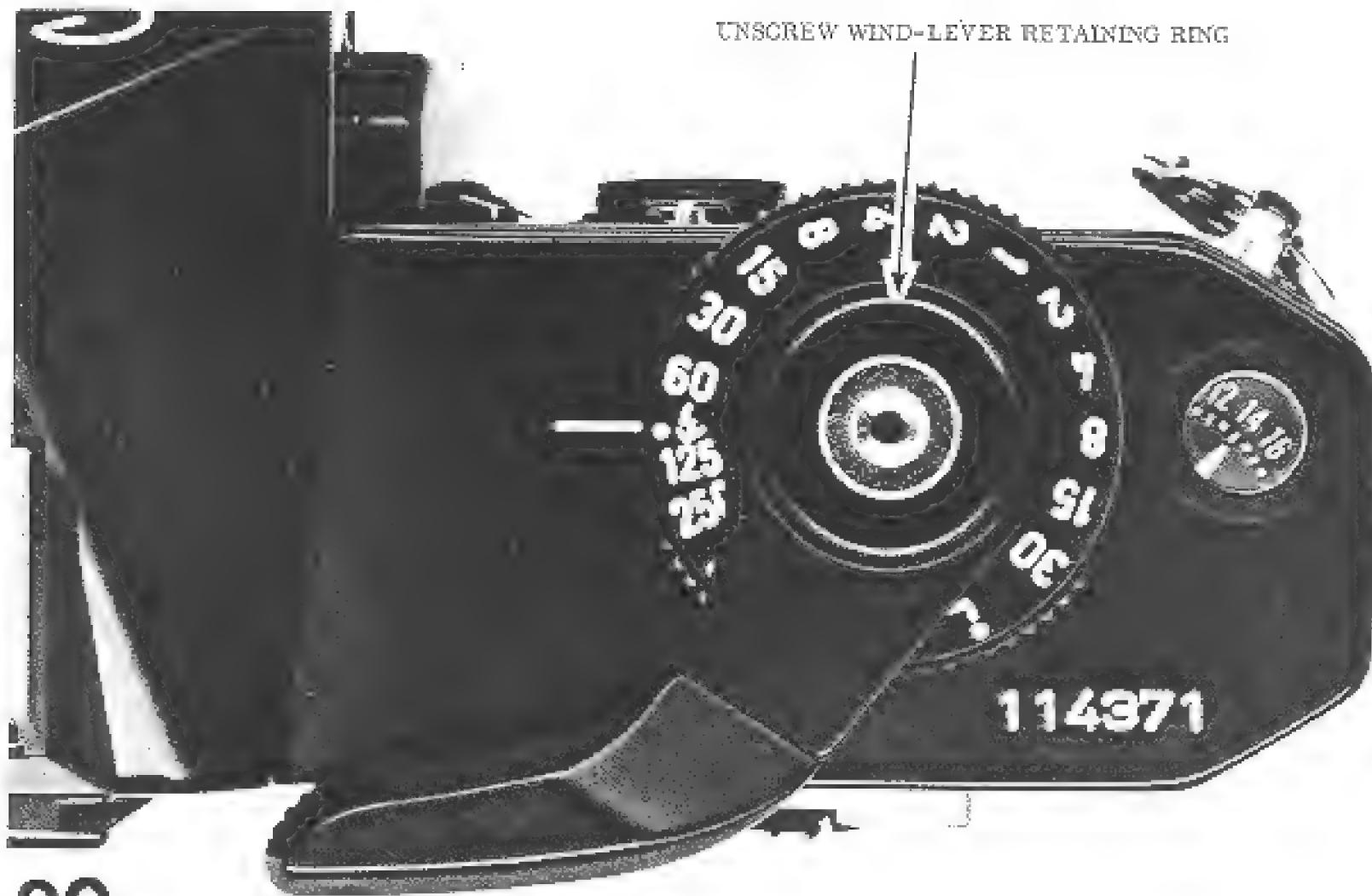


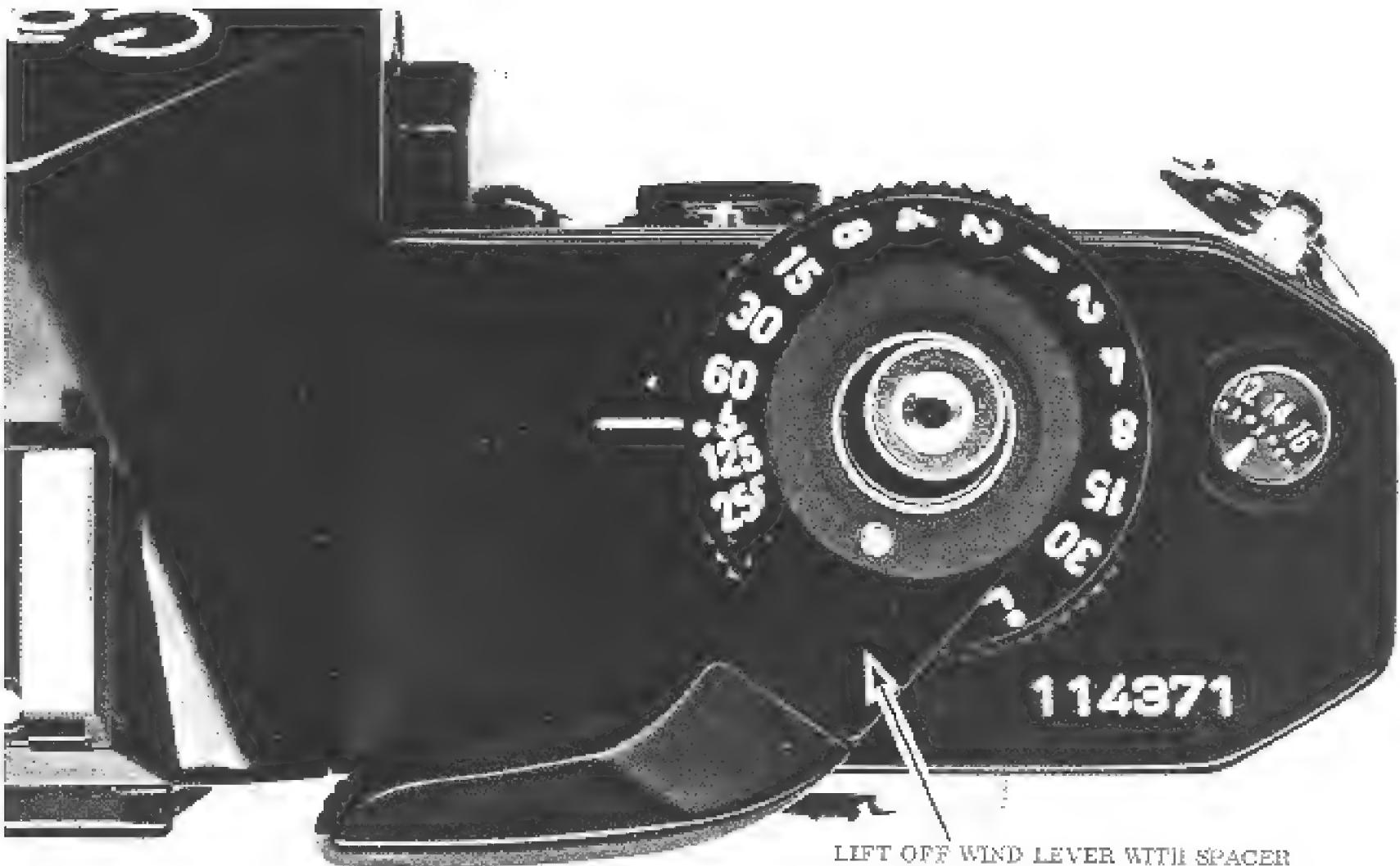
SPECIAL TOOL MAY BE SCREWED ONTO
RETAINING-RING THREADS TO HOLD
PARTS IN ASA100 POSITION



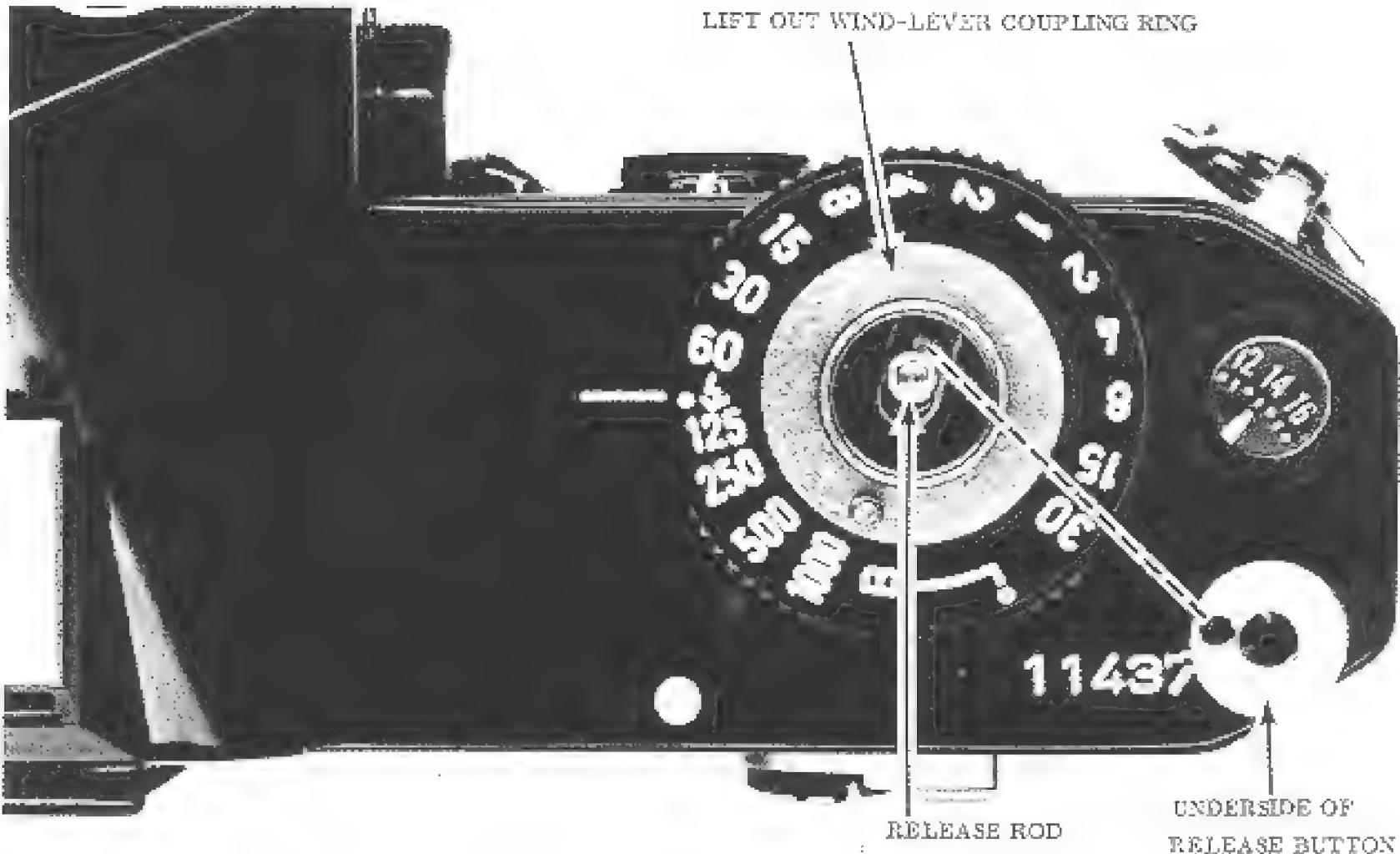
UNSCREW RETAINING SCREW AND LIFT OFF CATS-NORMAL SELECTOR





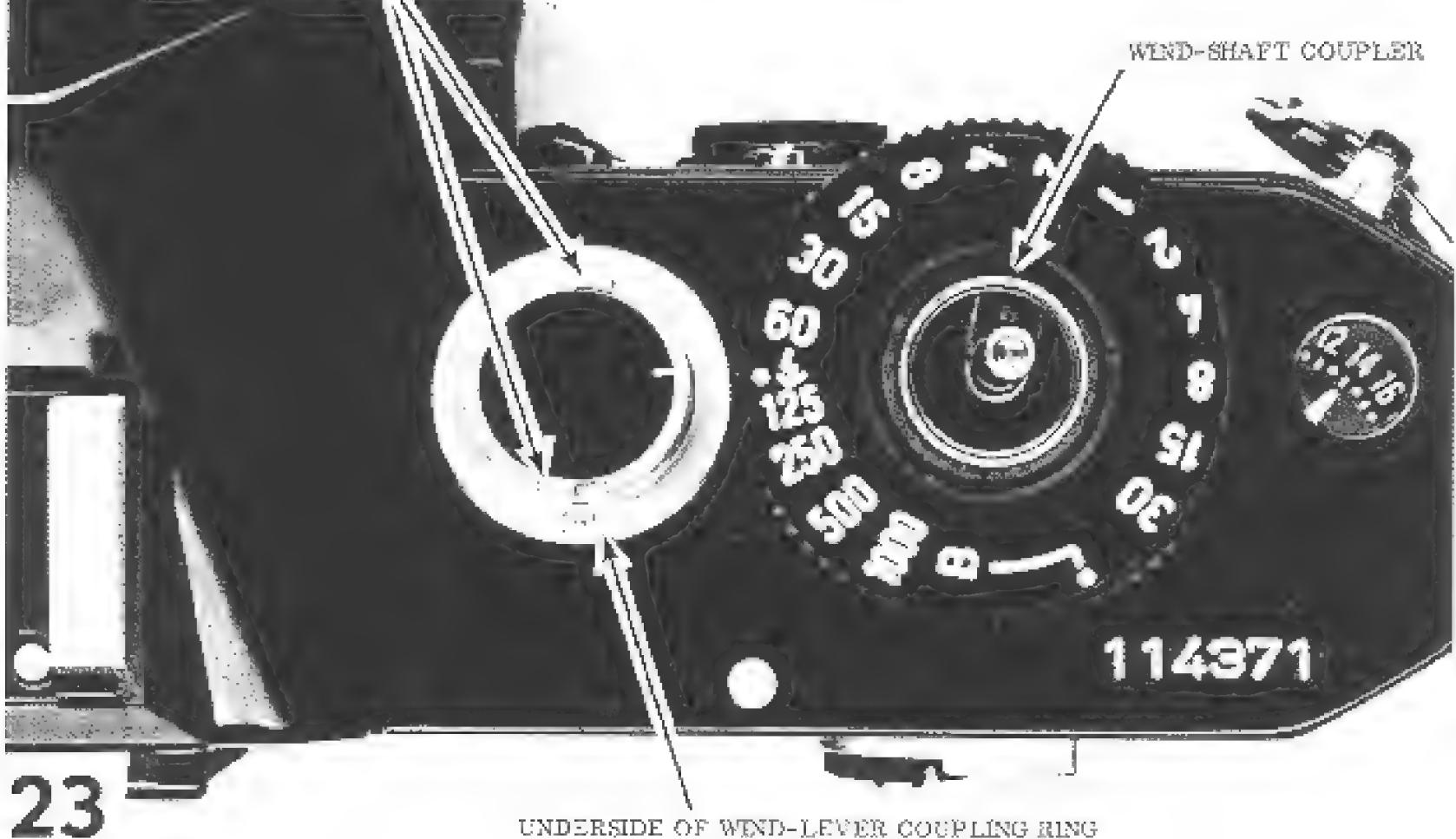


LIFT OFF WIND LEVER WITH SPACER

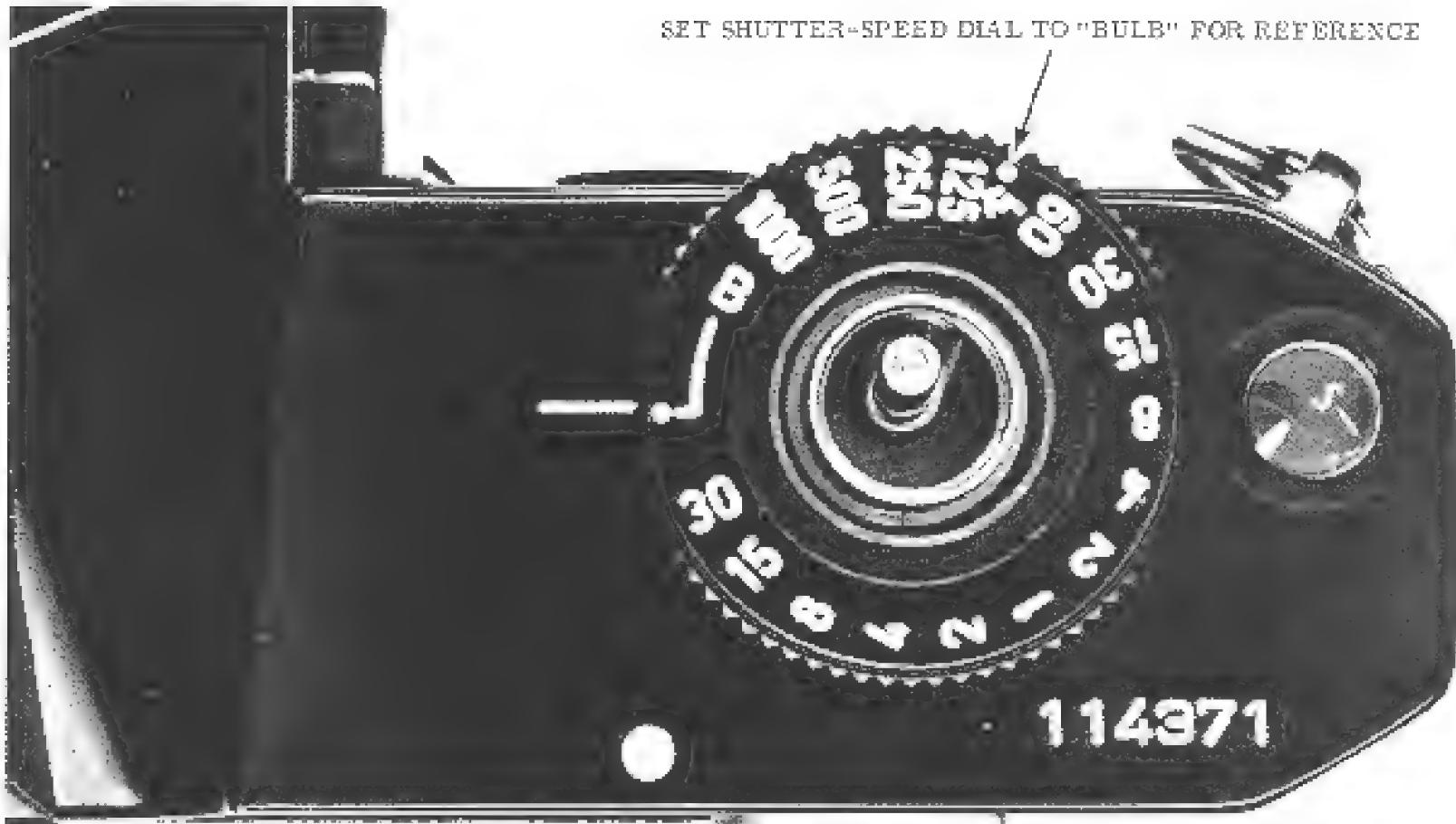


NOTE: IT'S NOT NECESSARY TO REMOVE THE RELEASE BUTTON; IF YOU DO, NOTE THE HOLE IN THE RELEASE BUTTON THAT FITS OVER THE FIN ON THE RELEASE ROD

102
TABS OF WIND-LEVER COUPLING RING PASS INTO SLOTS IN
WIND-SHAFT COUPLER

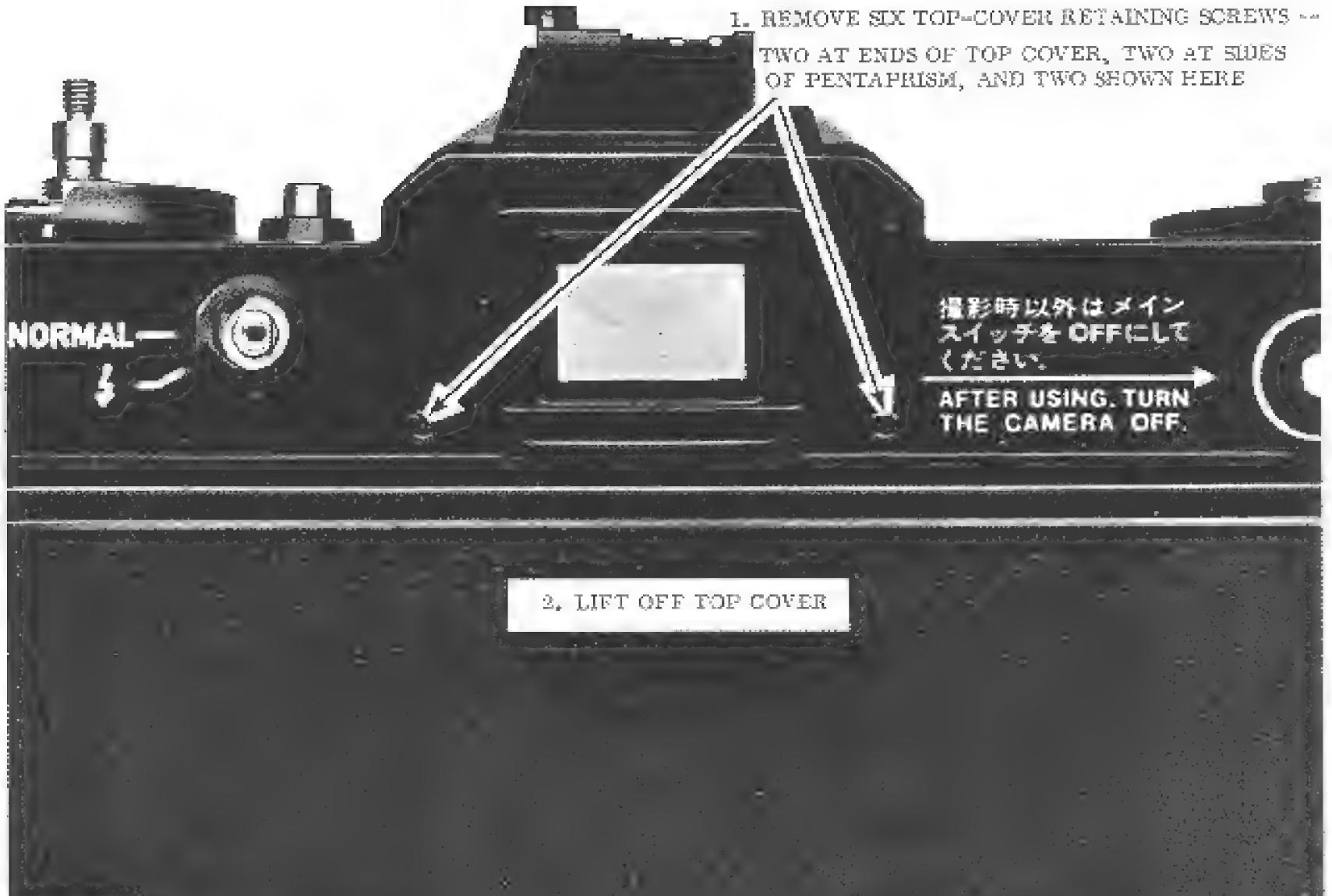


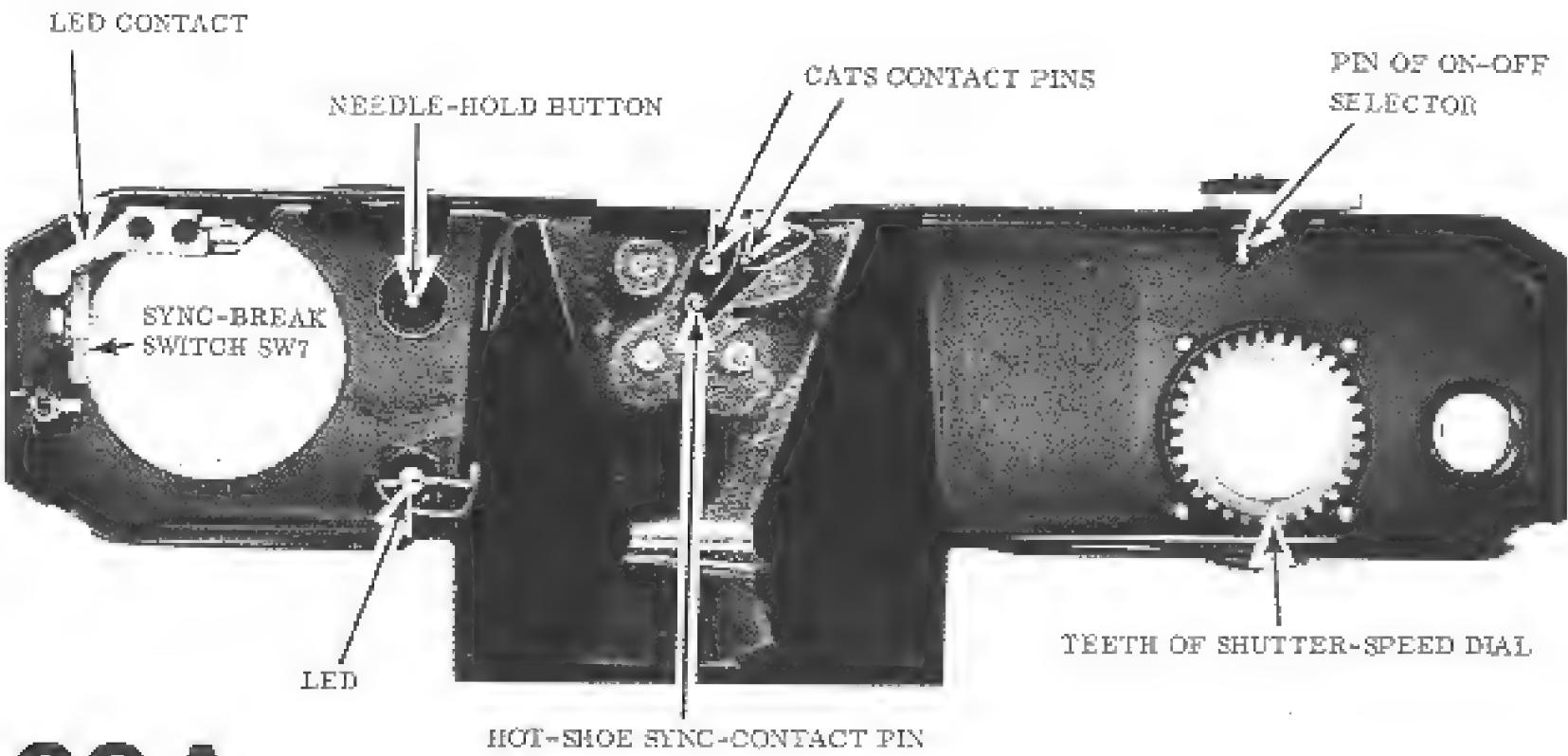
23



24

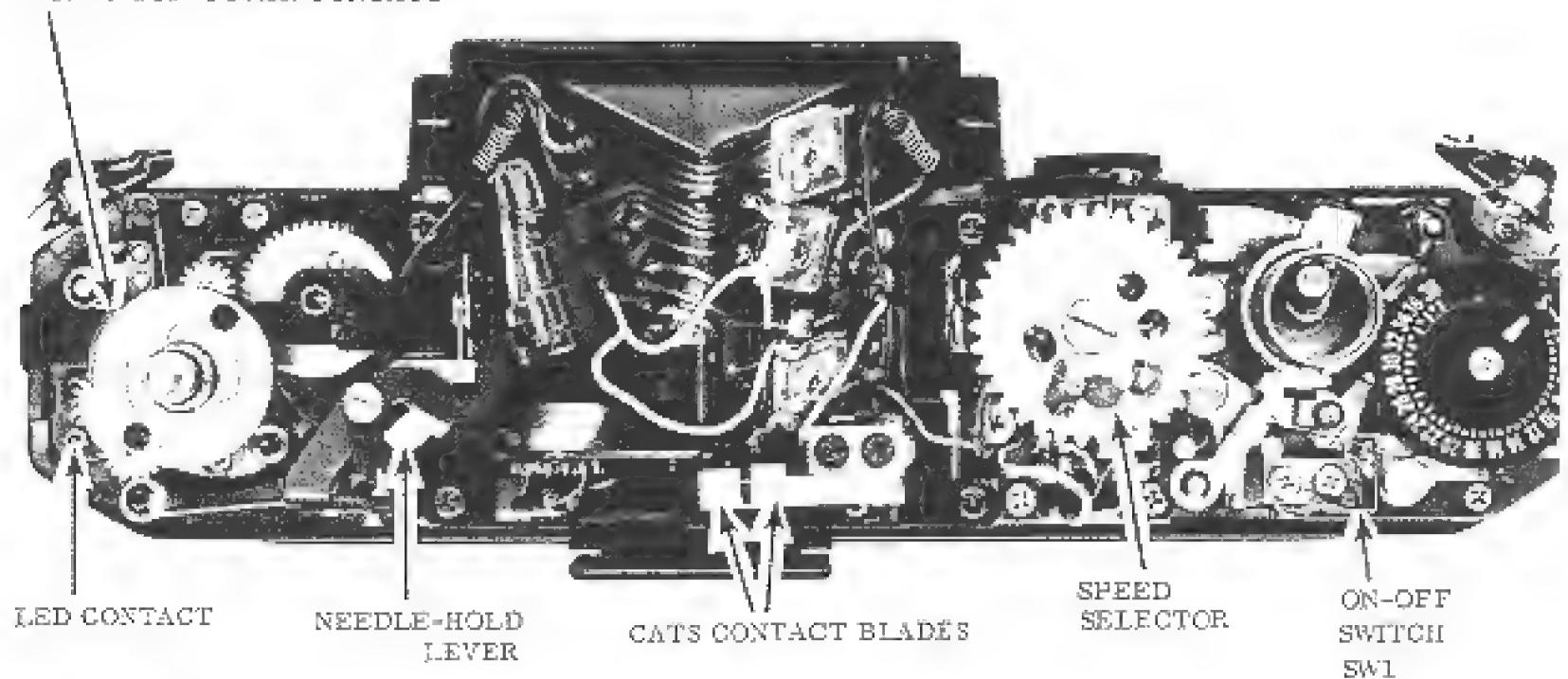
1. REMOVE SIX TOP-COVER RETAINING SCREWS --
TWO AT ENDS OF TOP COVER, TWO AT SIDES
OF PENTAPRISM, AND TWO SHOWN HERE



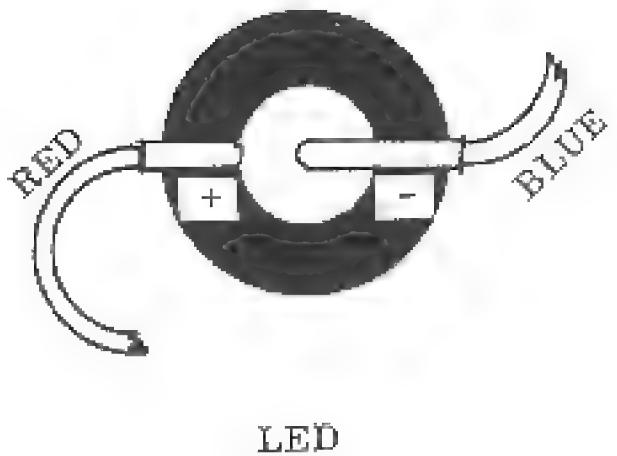


26A

X-SYNC TOP-COVER CONTACT



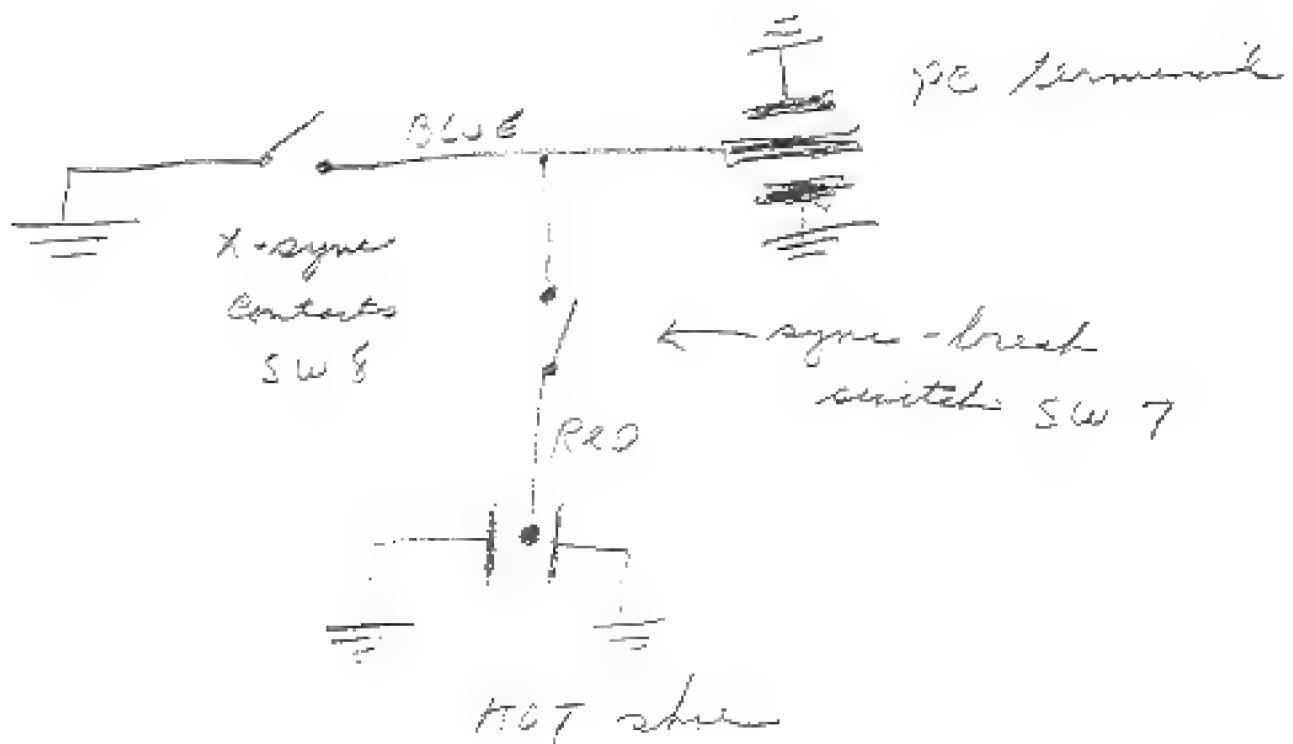
26B



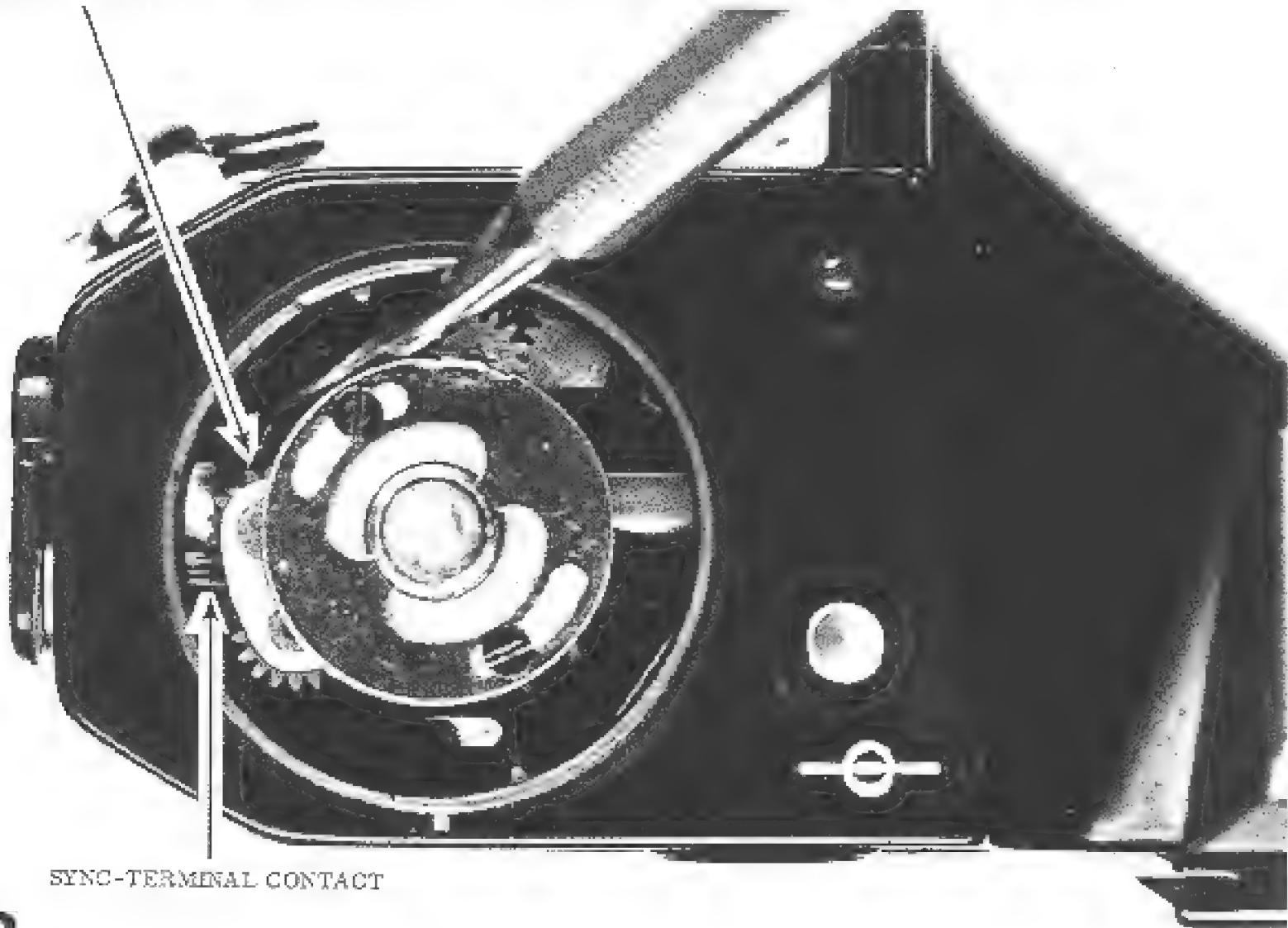
LED

THE LED SHOULD GLOW WITH 2 VOLTS
APPLIED ACROSS THE TERMINALS

27

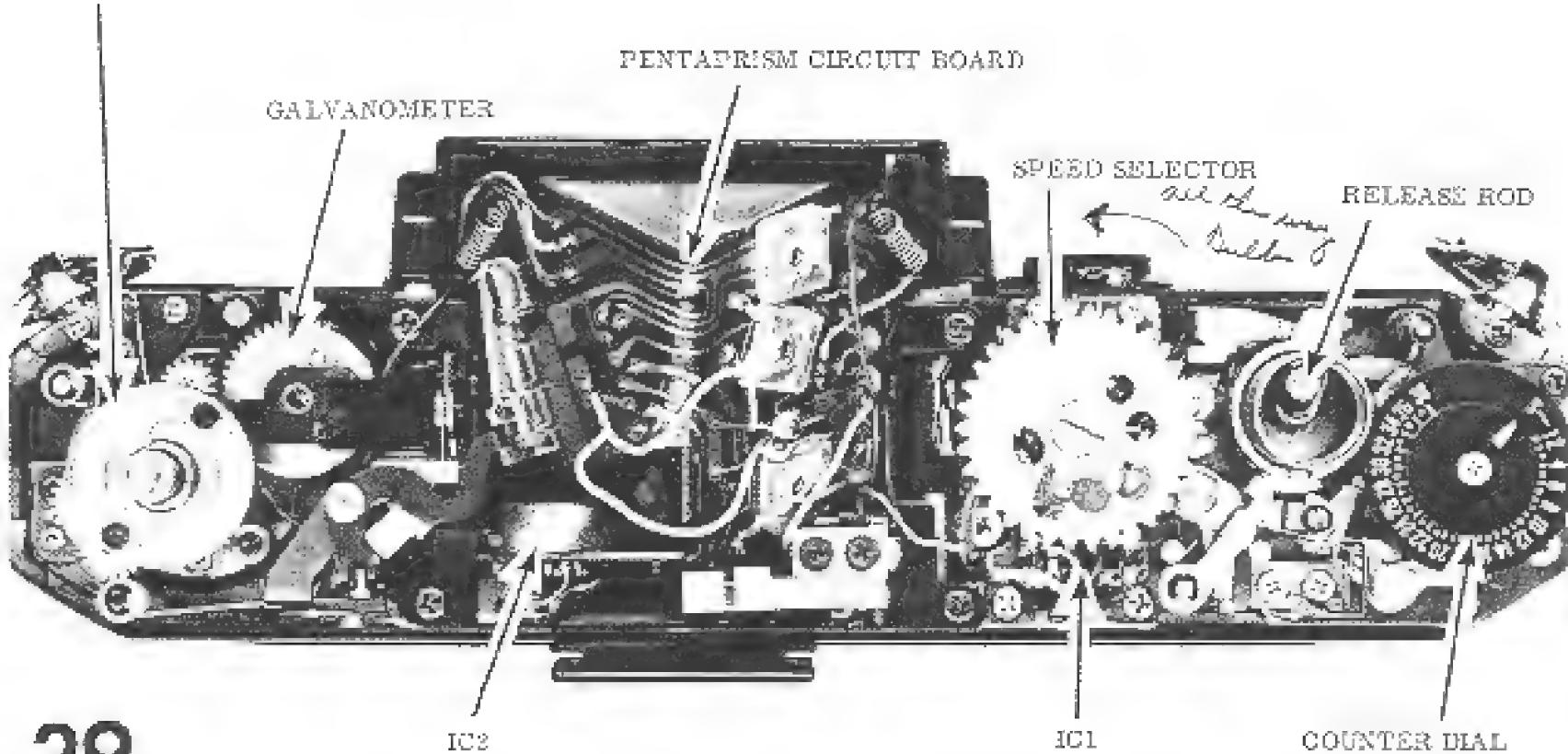


WHEN REPLACING THE TOP COVER, HOLD THE X-SYNC TOP-COVER CONTACT AWAY FROM THE SYNC-TERMINAL CONTACT



SYNC-TERMINAL CONTACT

FILM-SPEED COUPLER

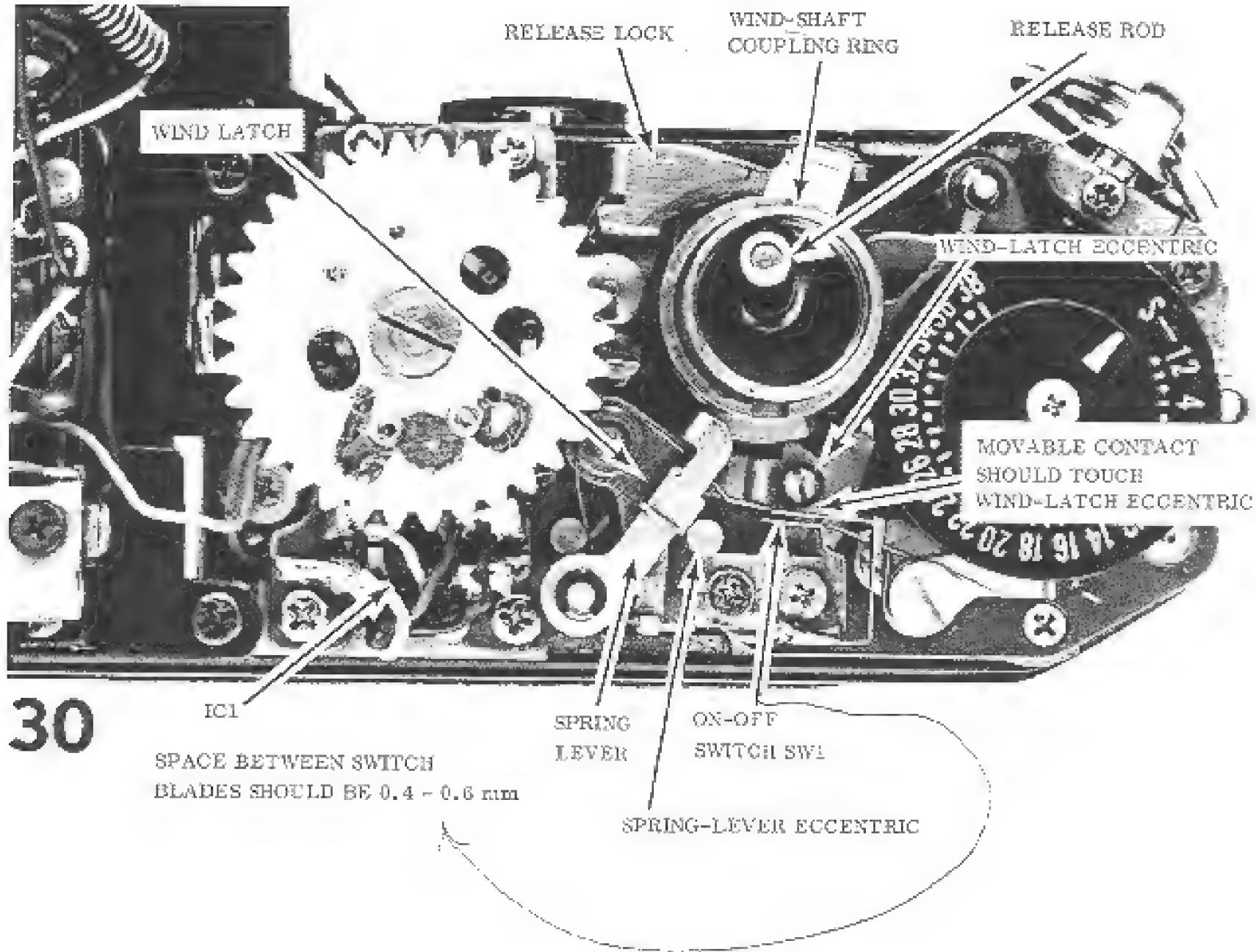


29

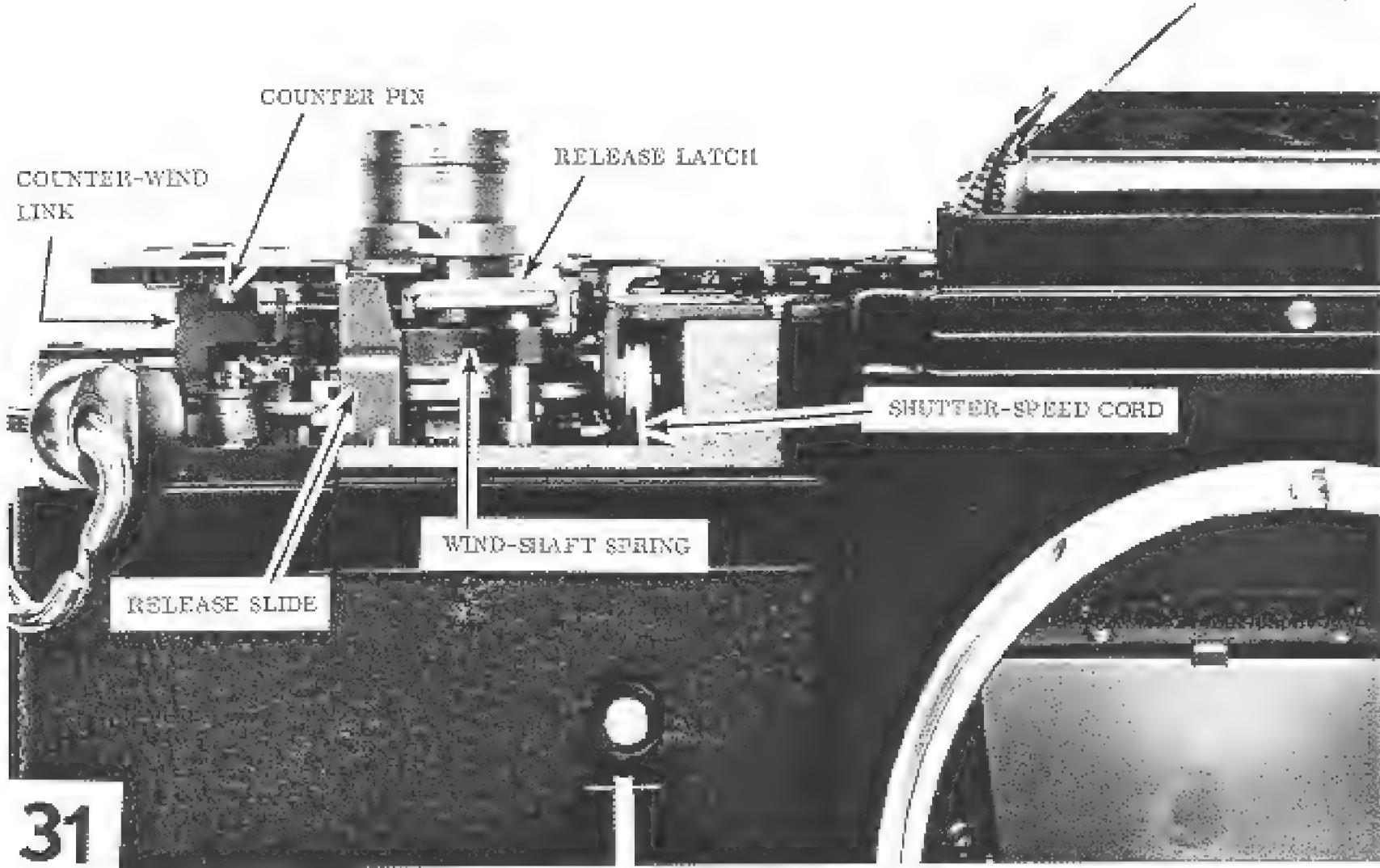
IC₁ - Electromagnet switch

IC₂ - Invertor amplifier

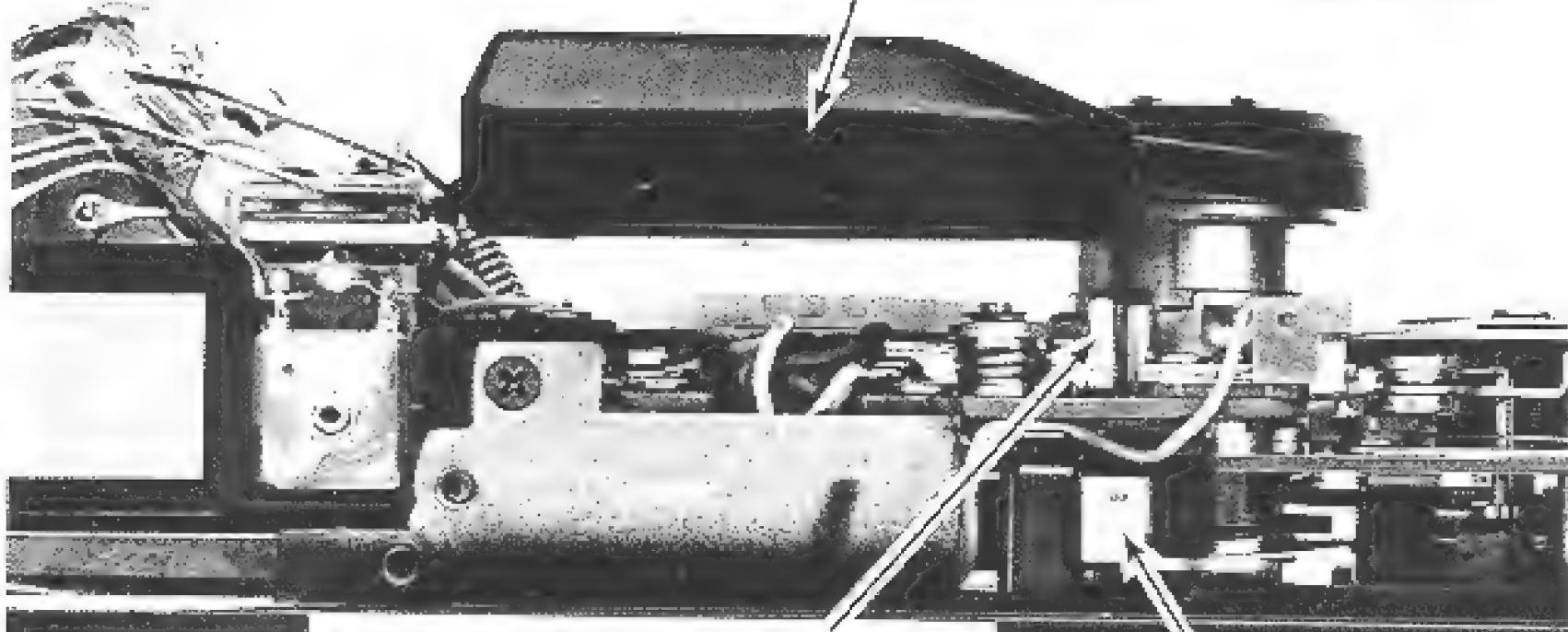
when faulty - meter drops suddenly down



30

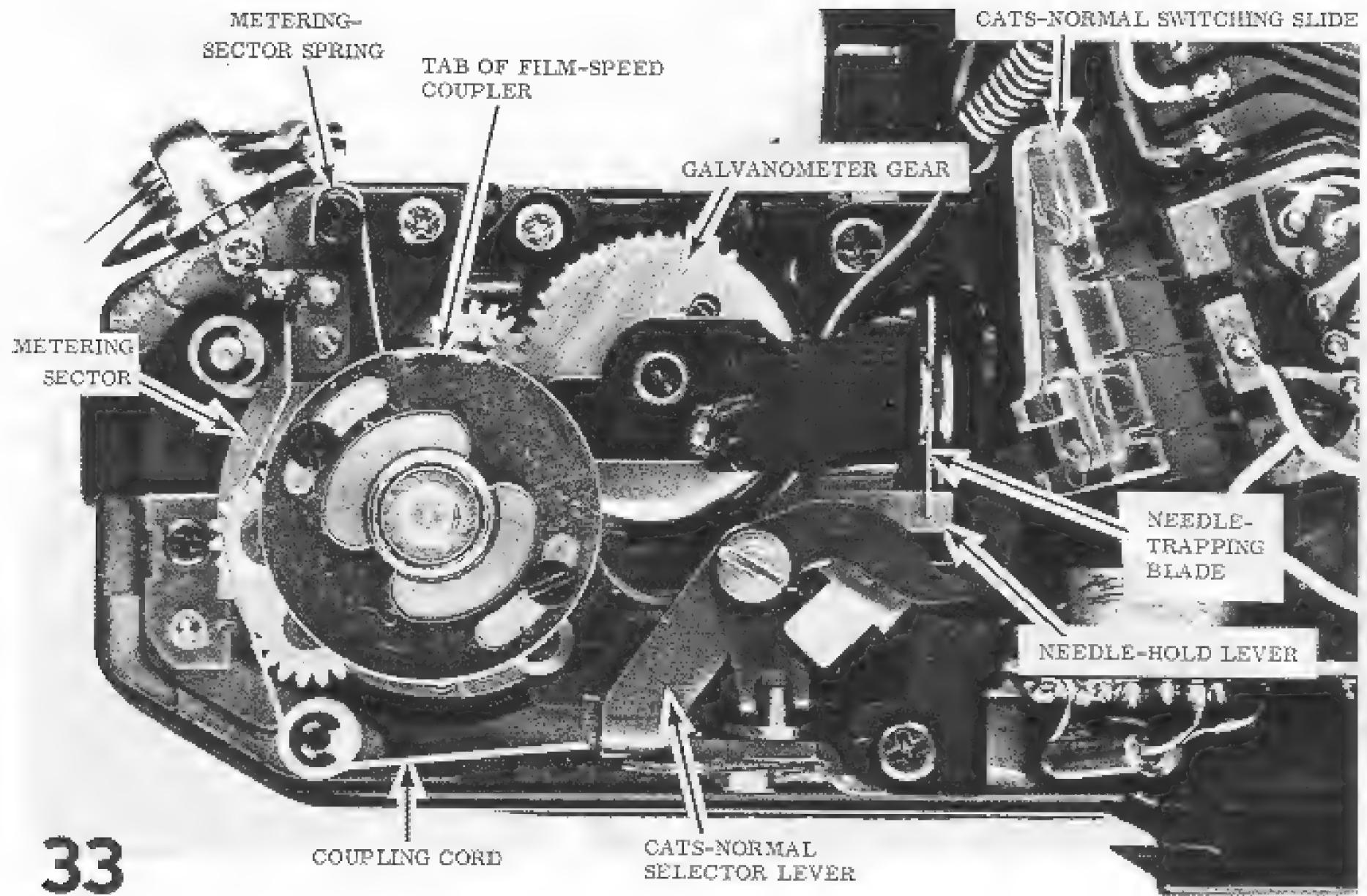


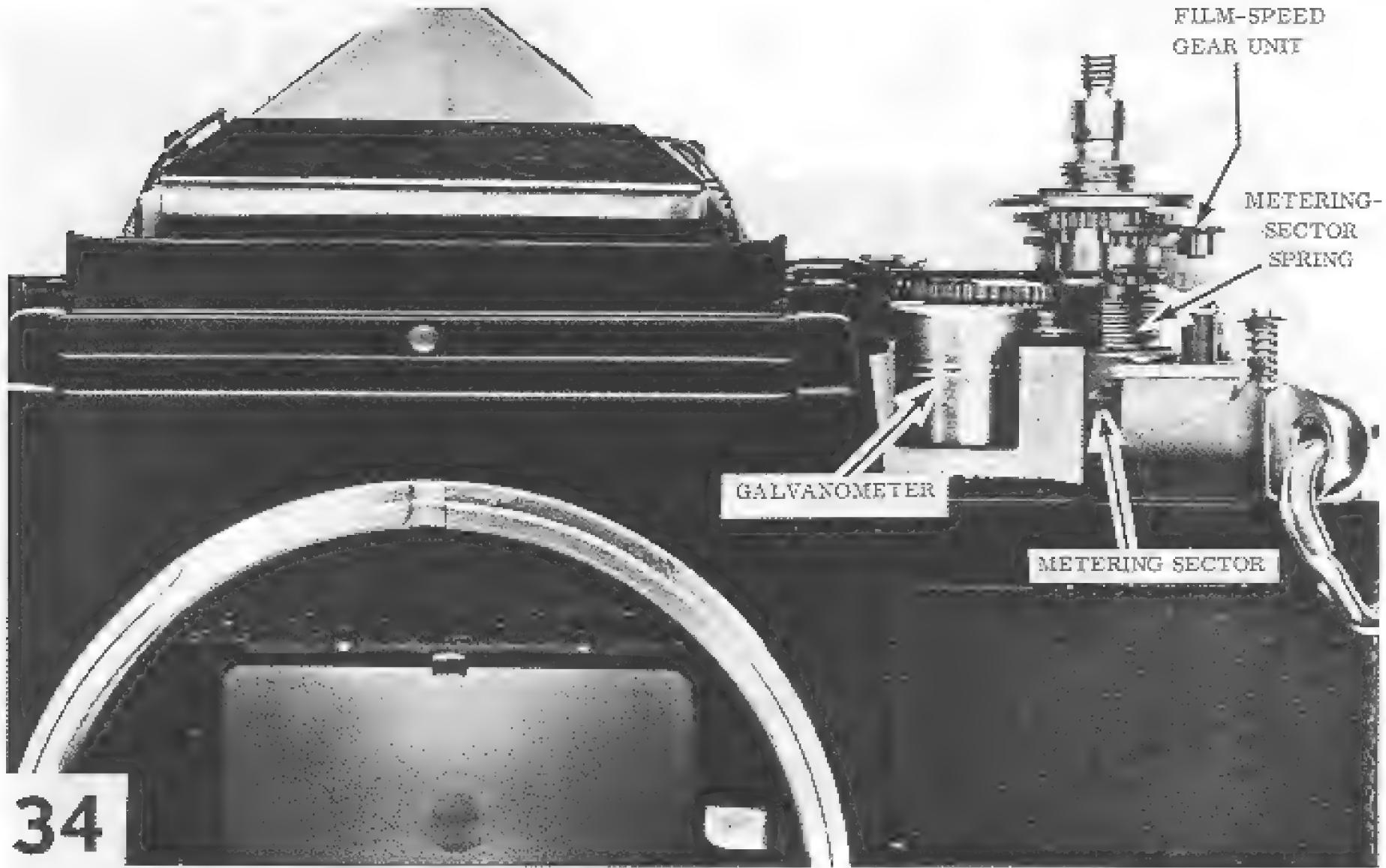
REPLACE WIND-LEVER PARTS TO OPERATE SHUTTER



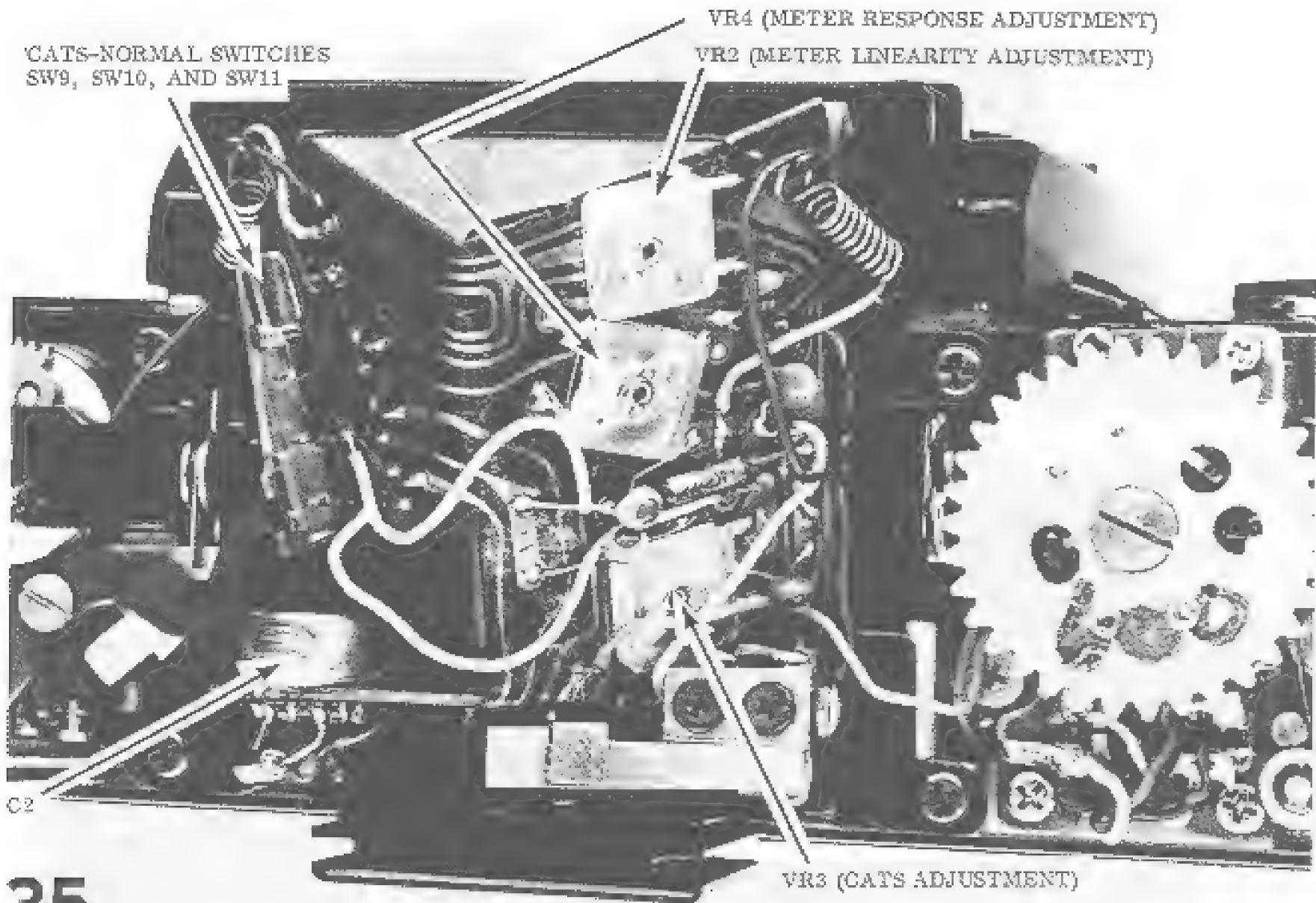
PUSH WIND-LATCH TAB TO THE LEFT TO
DISENGAGE WIND-SHAFT COUPLING RING AND
COCK SHUTTER -- TO RELEASE SHUTTER,
PUSH DOWN RELEASE SLIDE

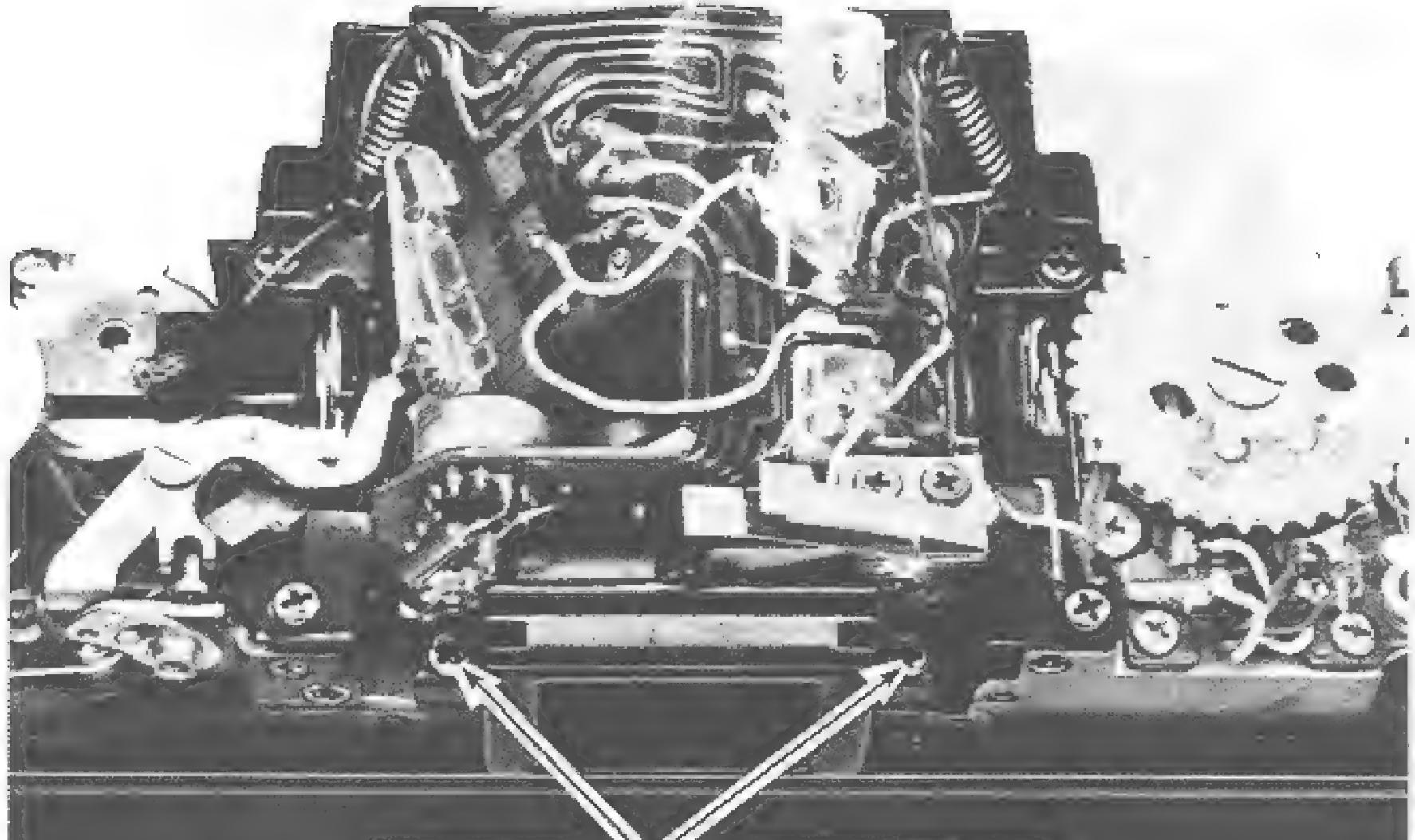
DOUBLE-EXPOSURE LEVER



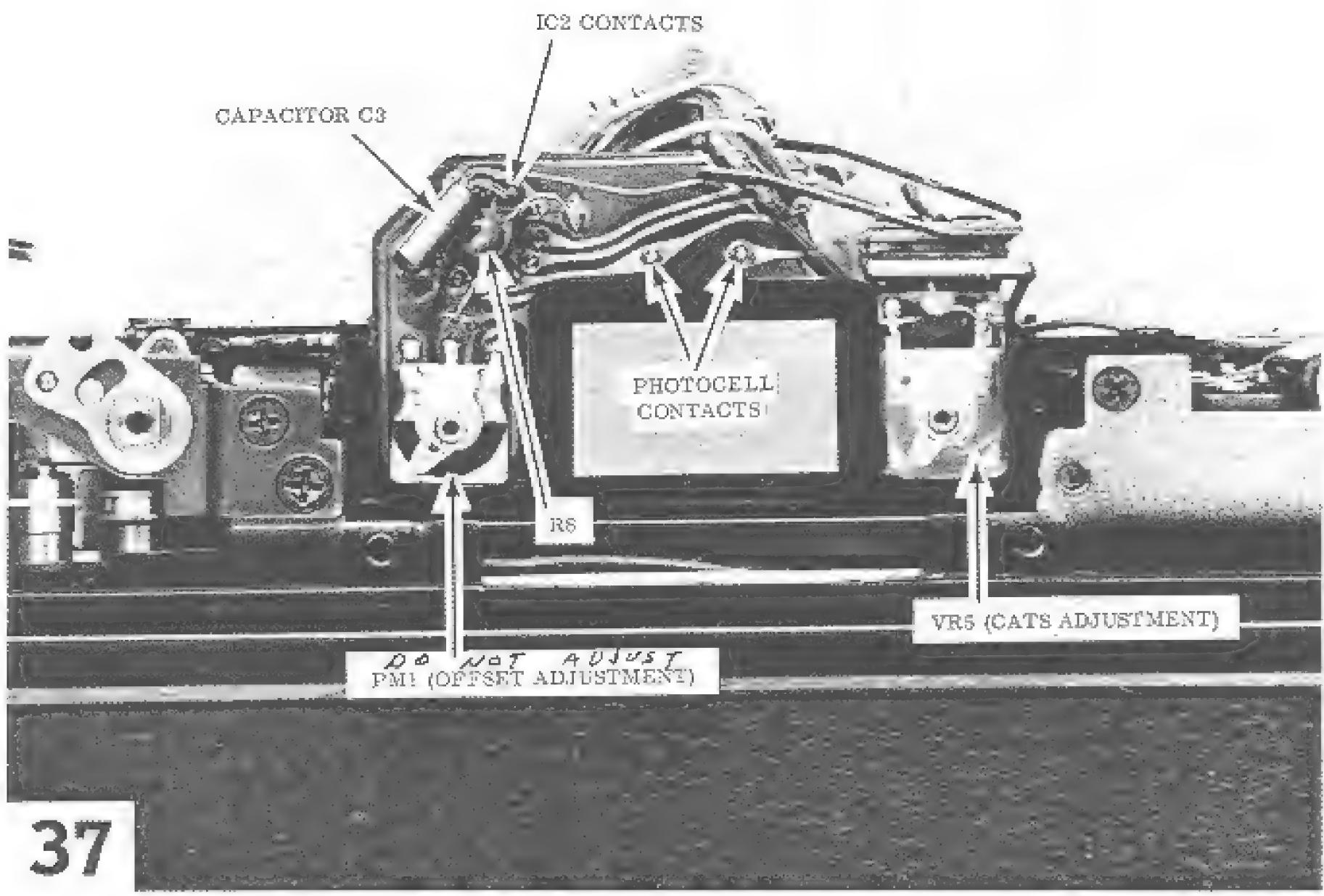


'CATS-NORMAL SWITCHES
SW9, SW10, AND SW11





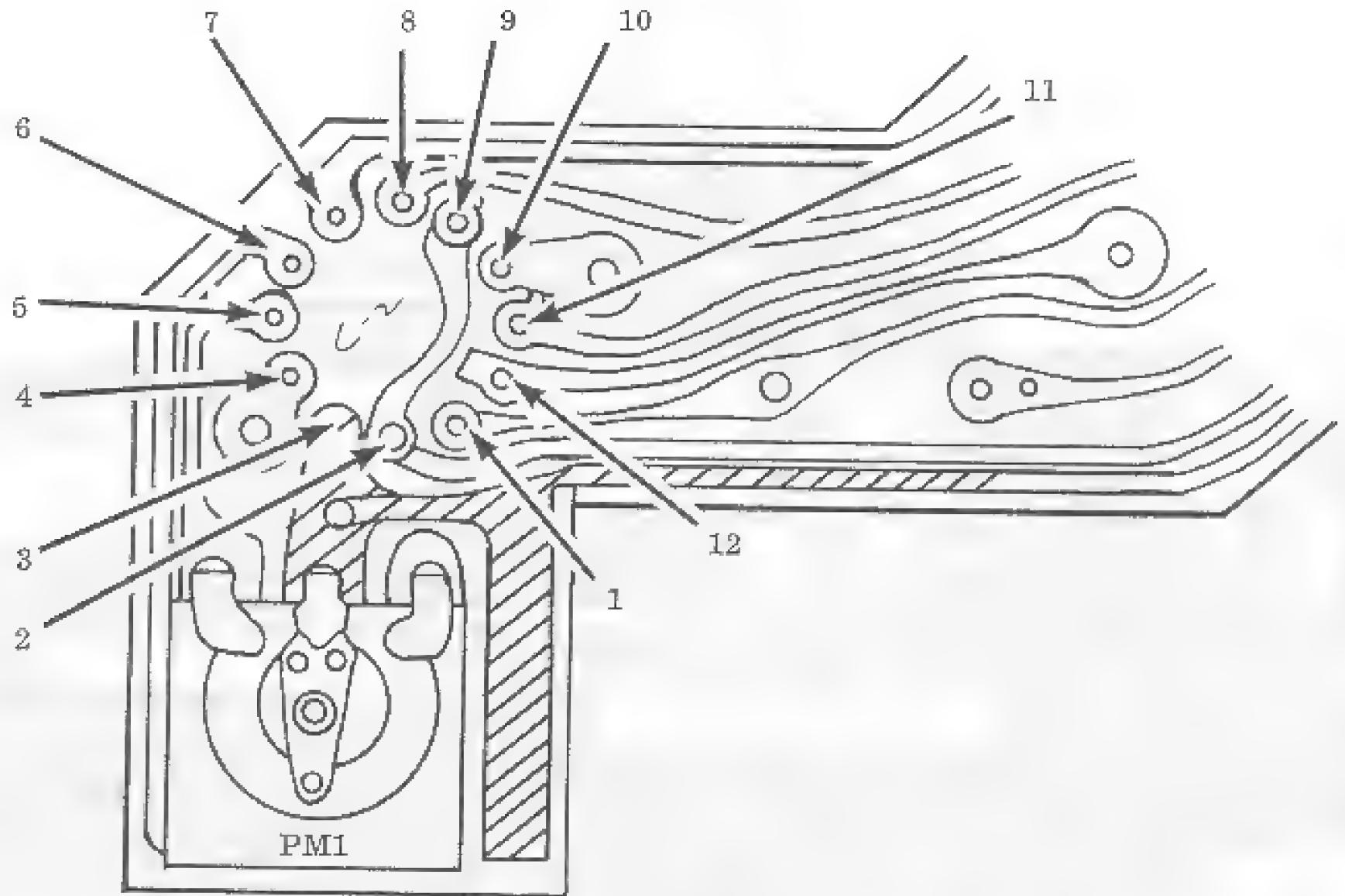
REMOVE TWO SCREWS AND LIFT OUT EYELENS

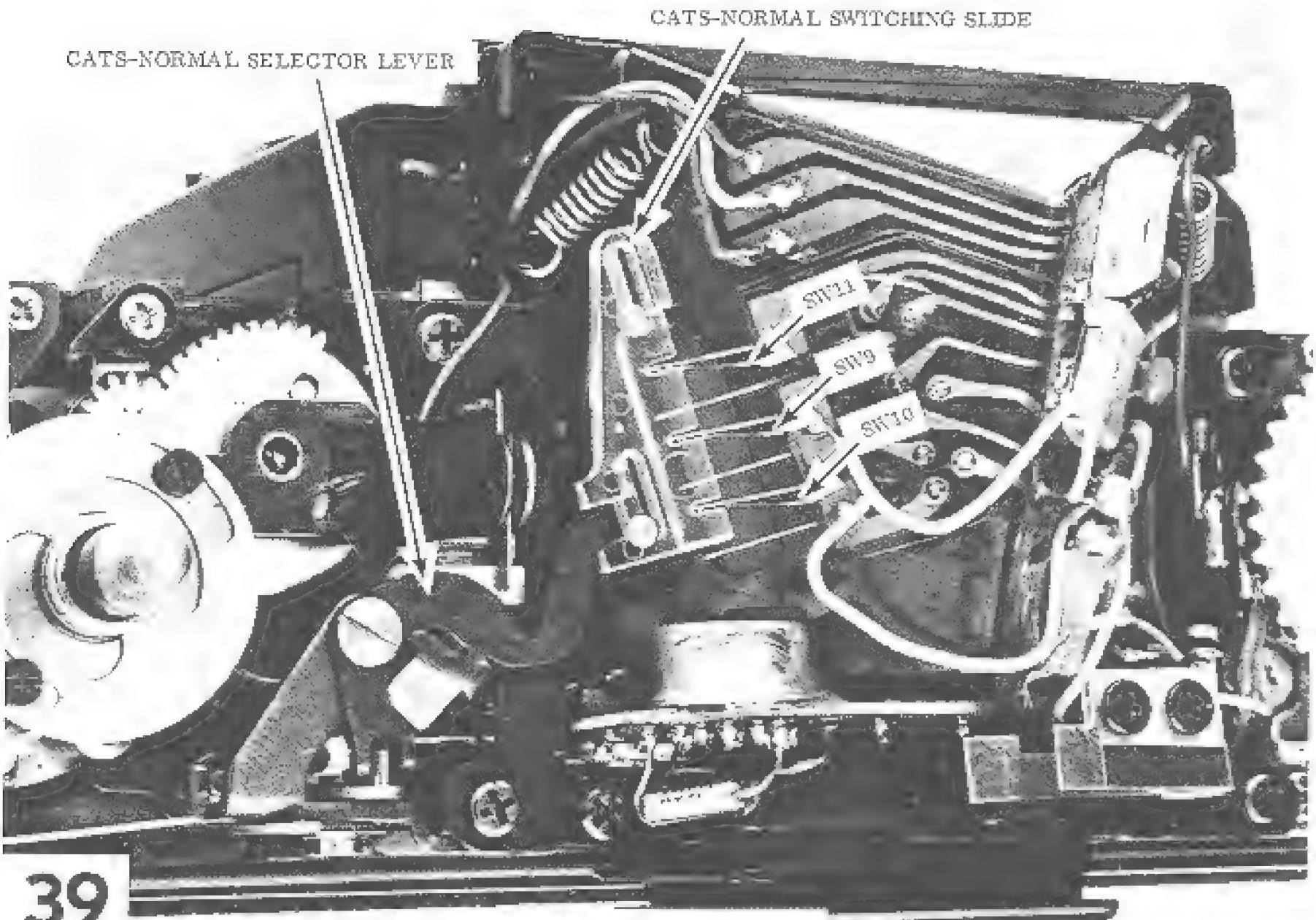


37

Photo cellos

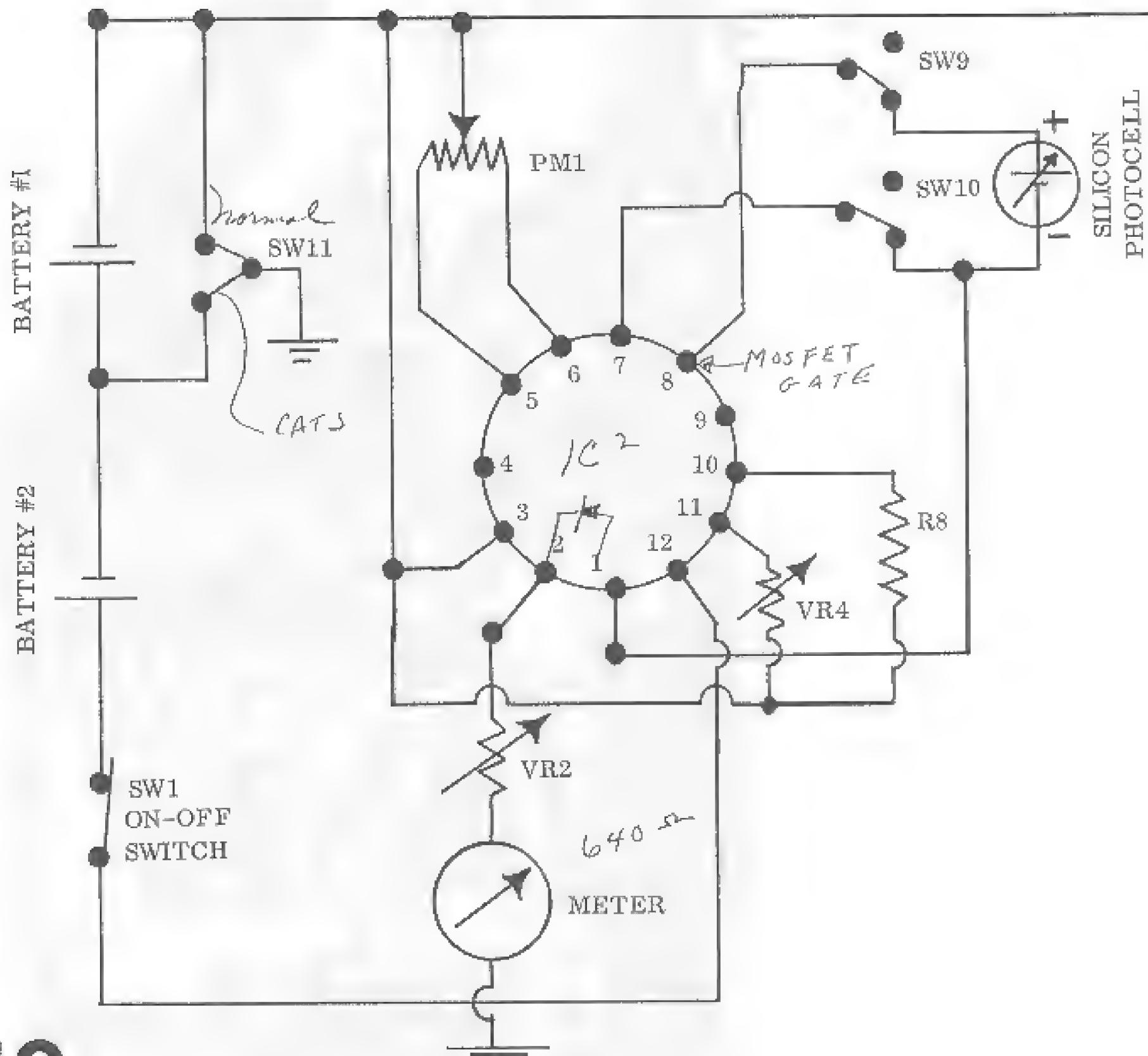






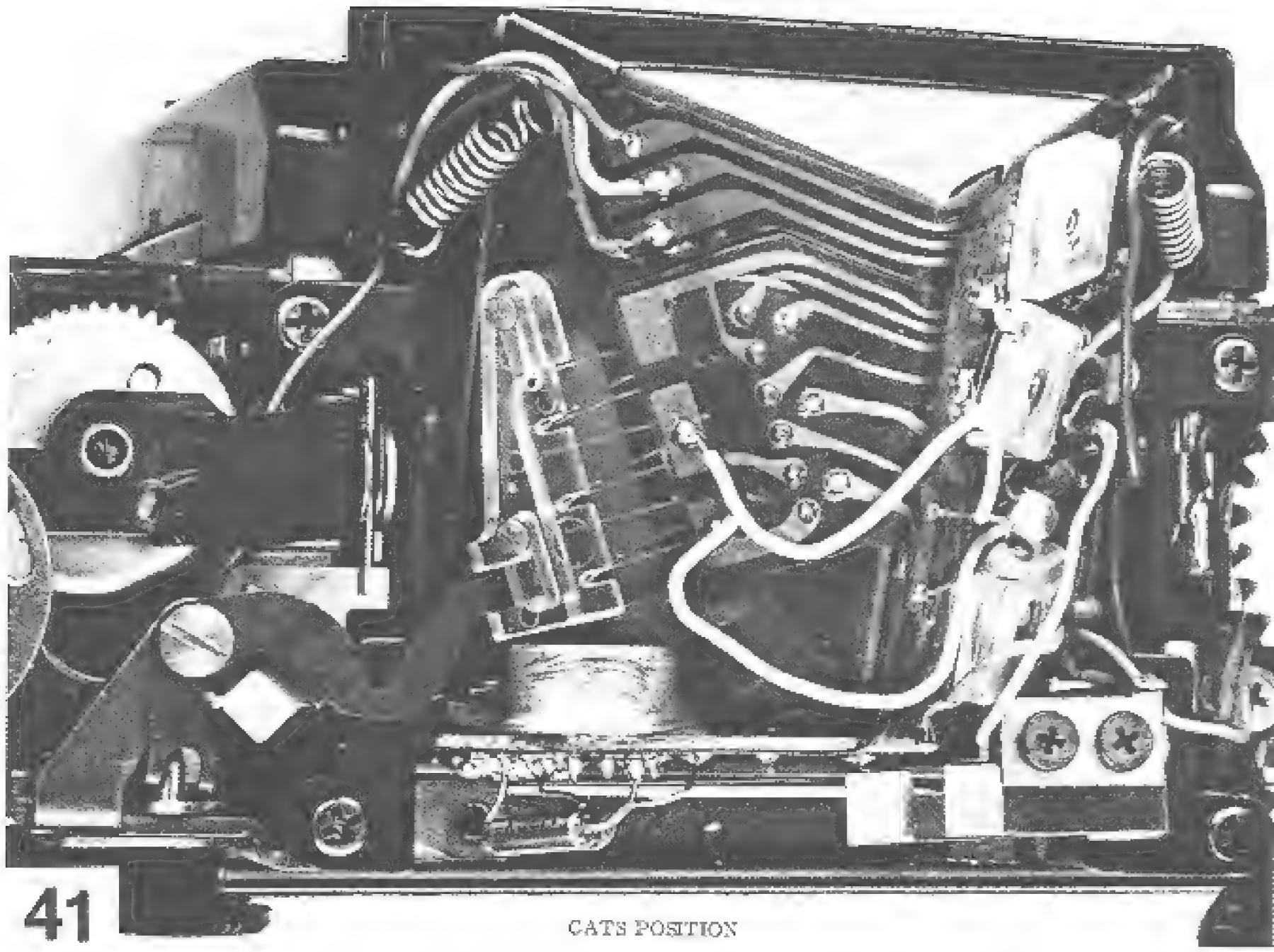
39

"NORMAL" POSITION



40

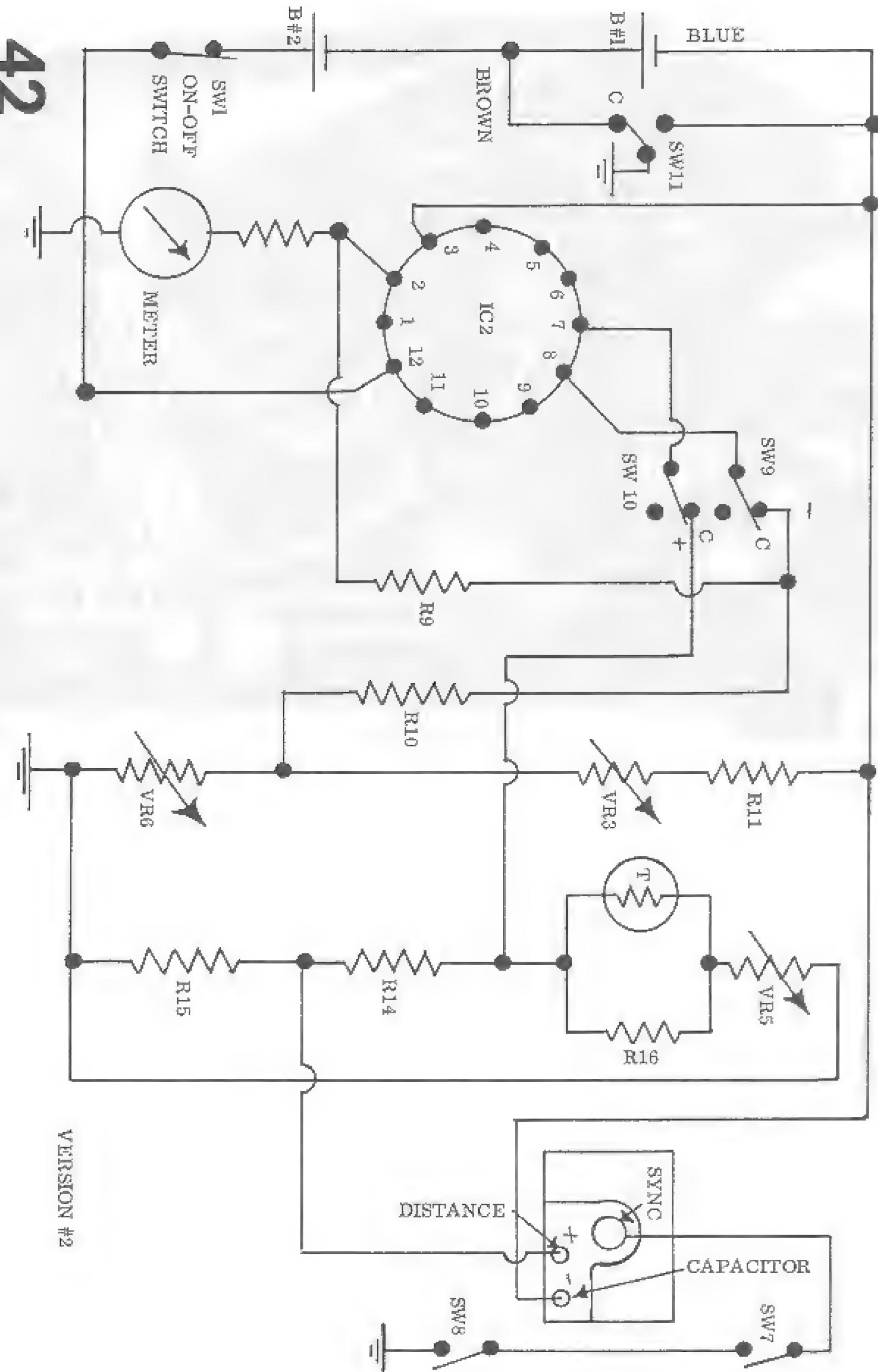
EXPOSURE-METER CIRCUIT



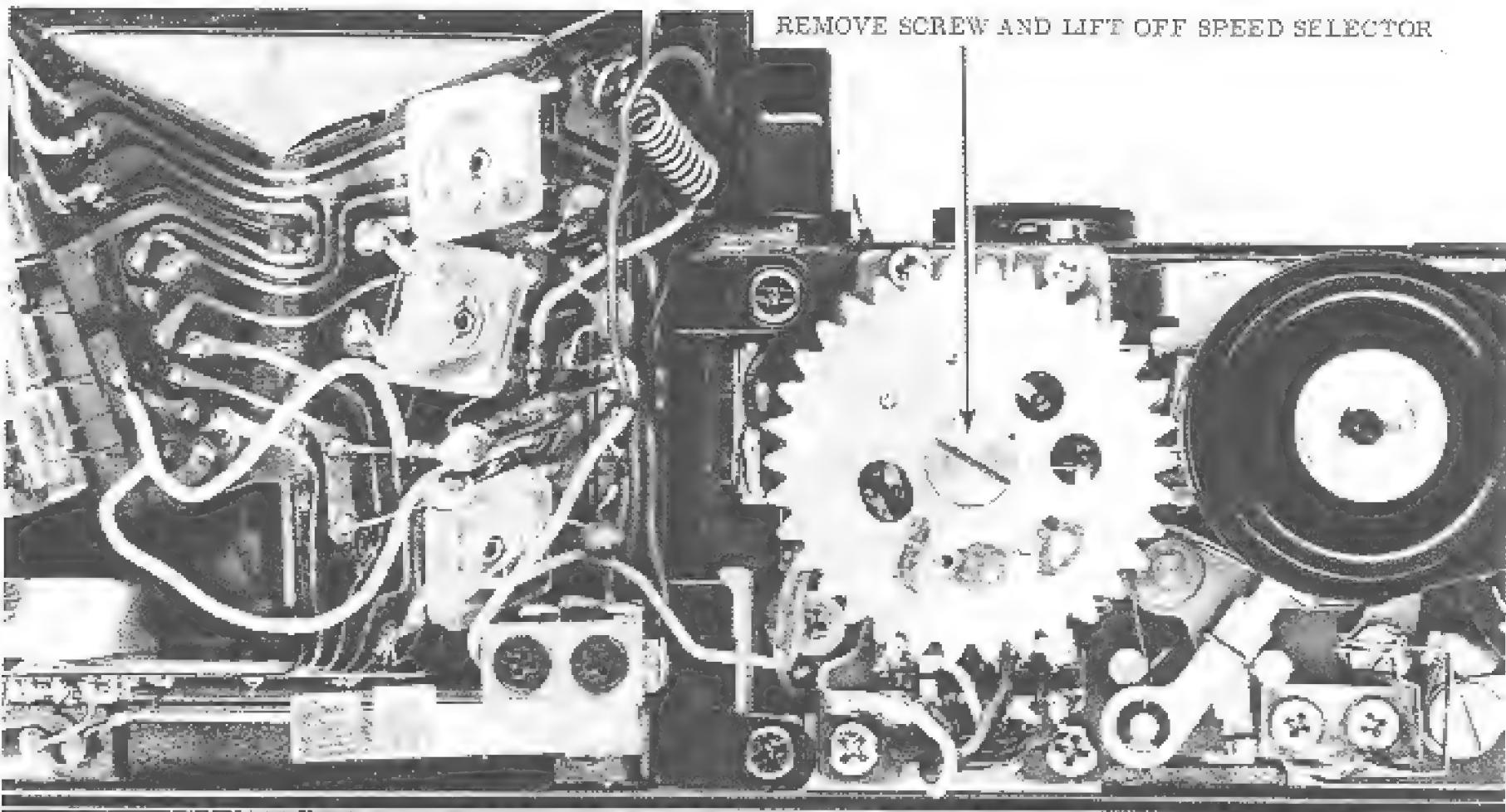
41

CATS POSITION

CATS CIRCUIT

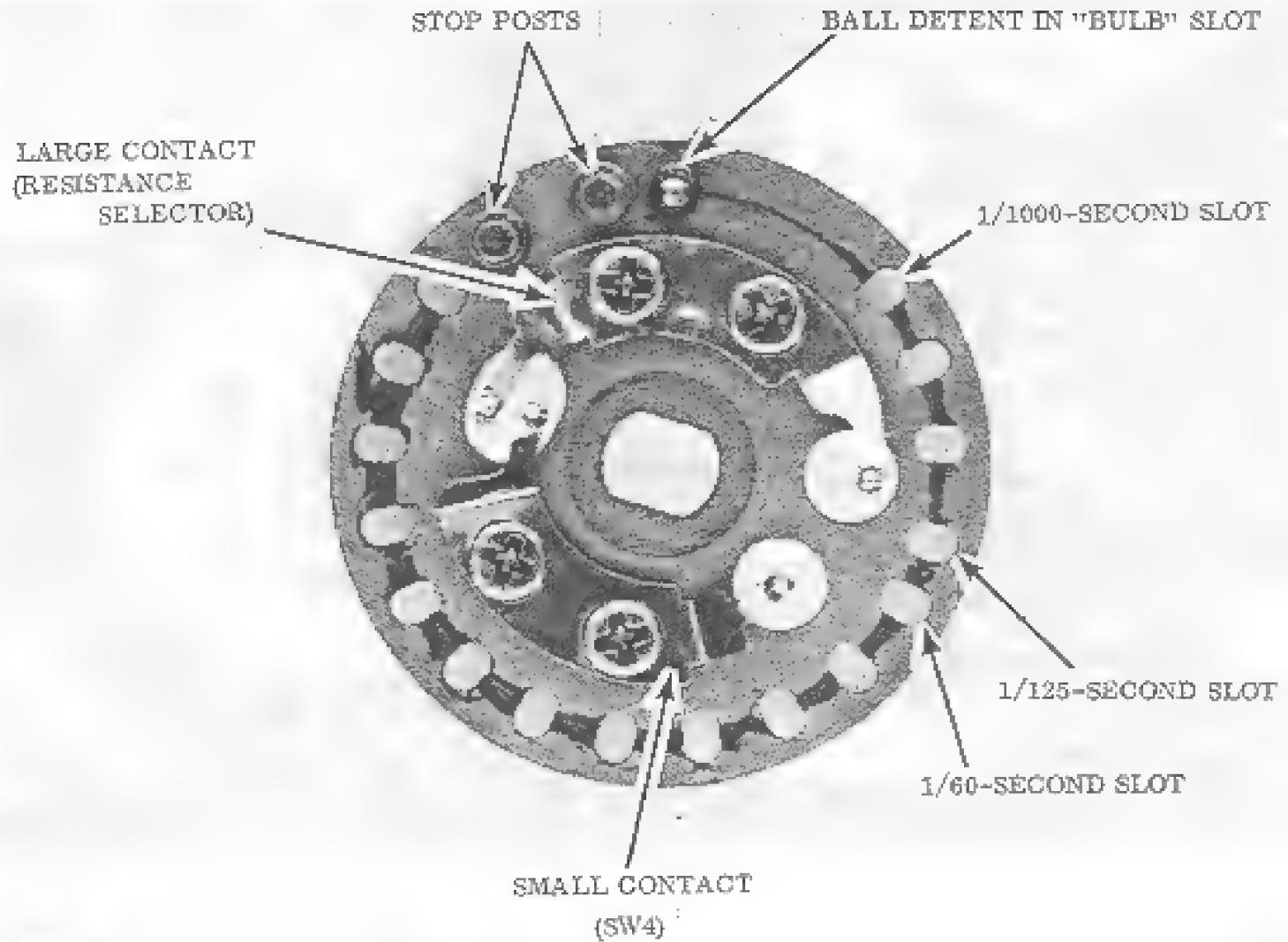


VERSION #2



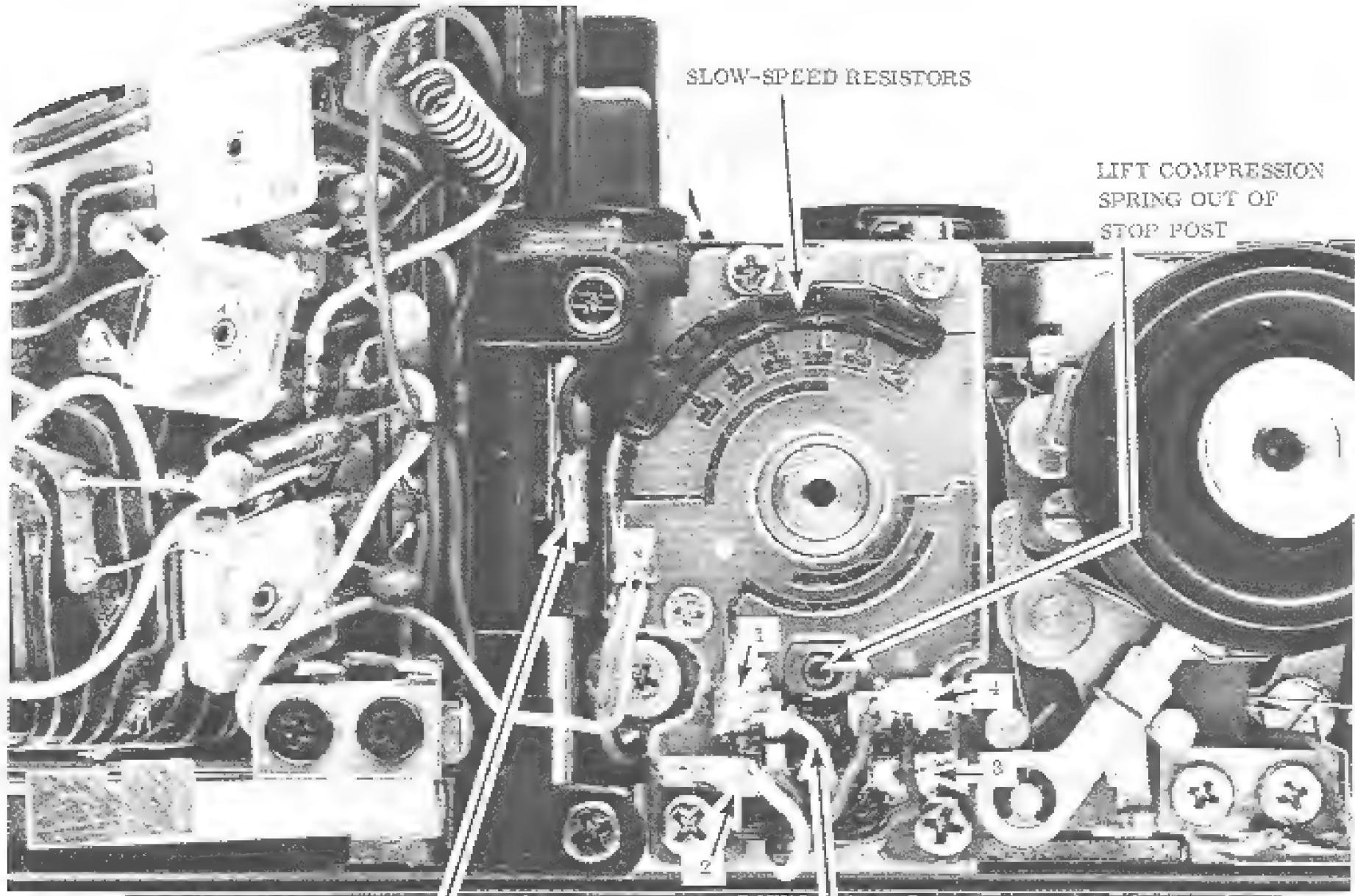
REMOVE SCREW AND LIFT OFF SPEED SELECTOR

CAUTION: SPEED-SELECTOR BALL DETENT
WILL BE LOOSE WHEN YOU LIFT OFF SPEED
SELECTOR



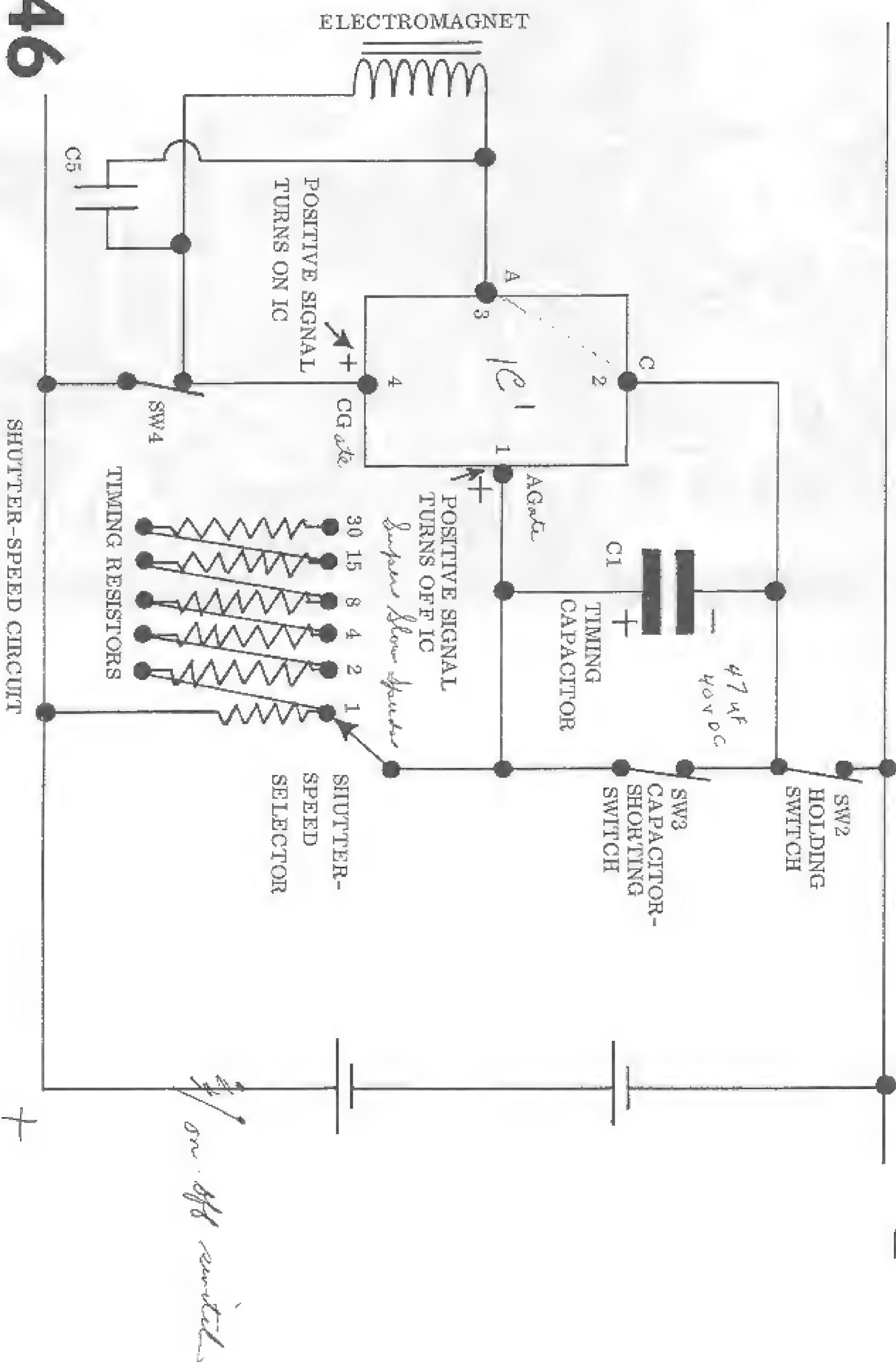
44

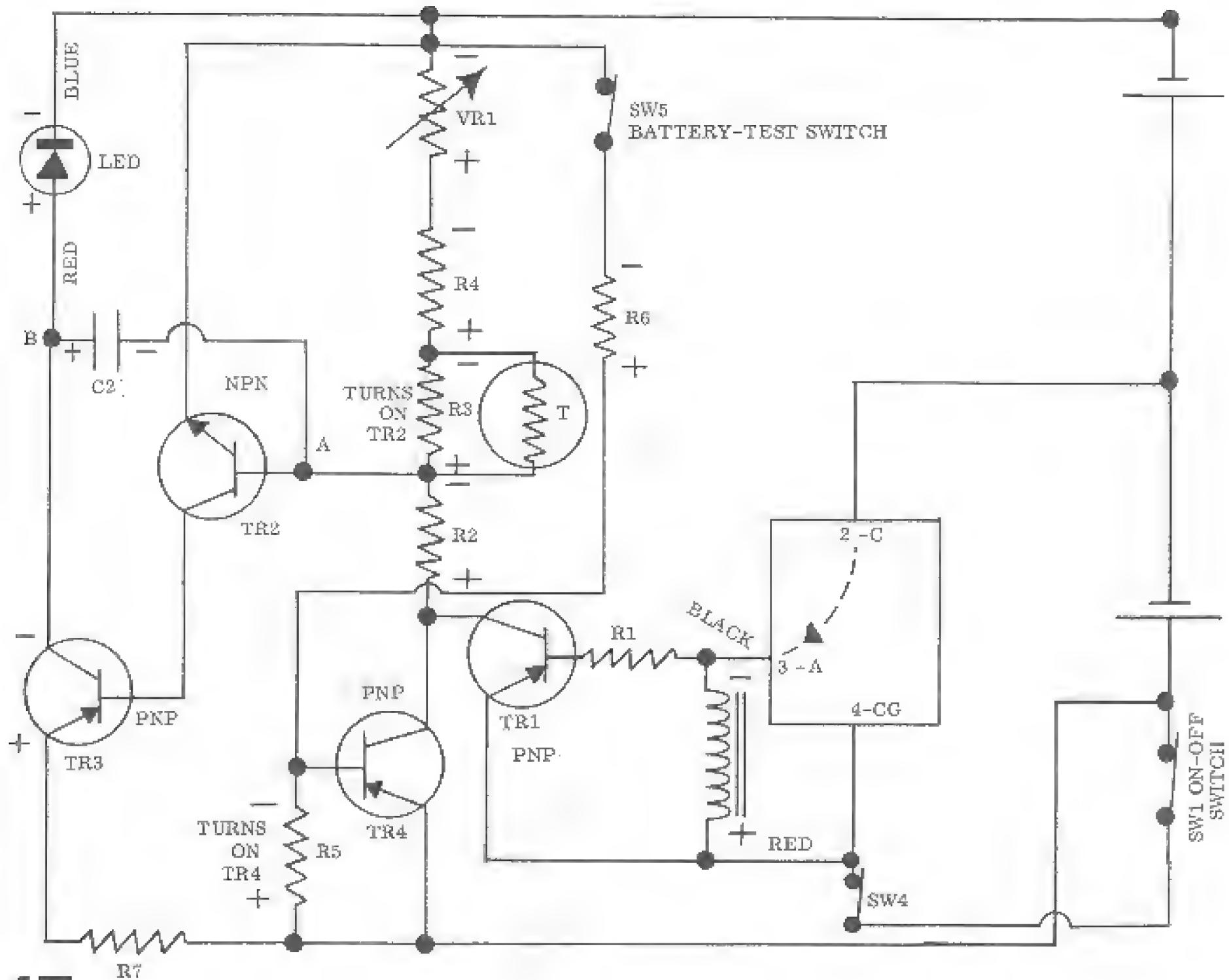
UNDERSIDE OF SPEED SELECTOR

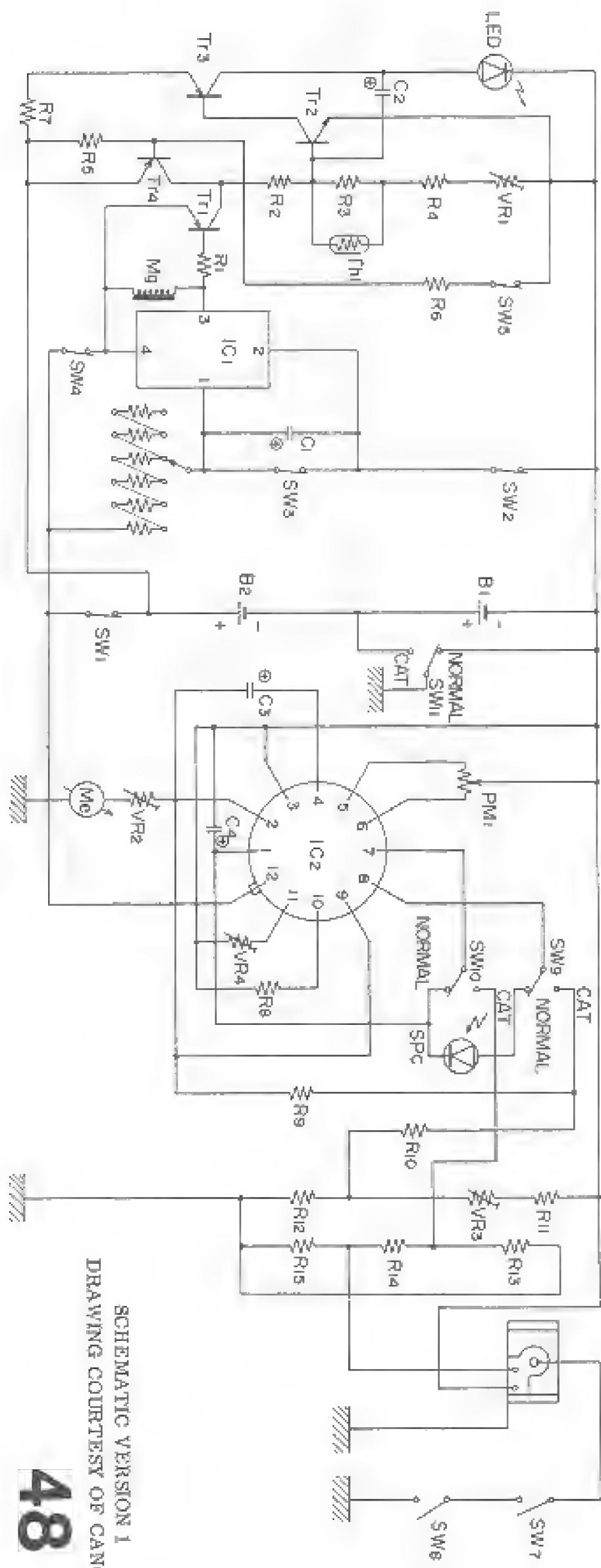


45

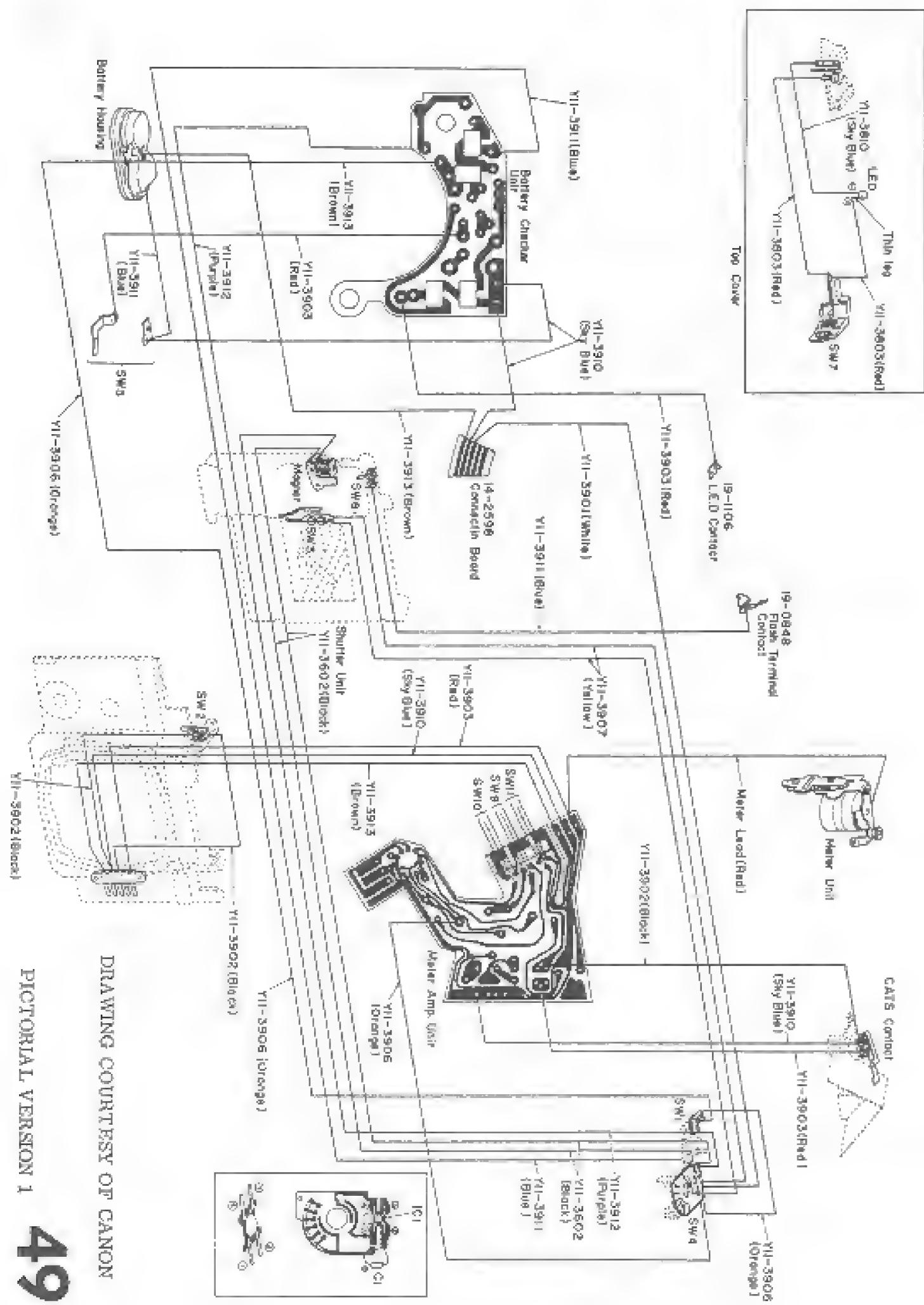
46







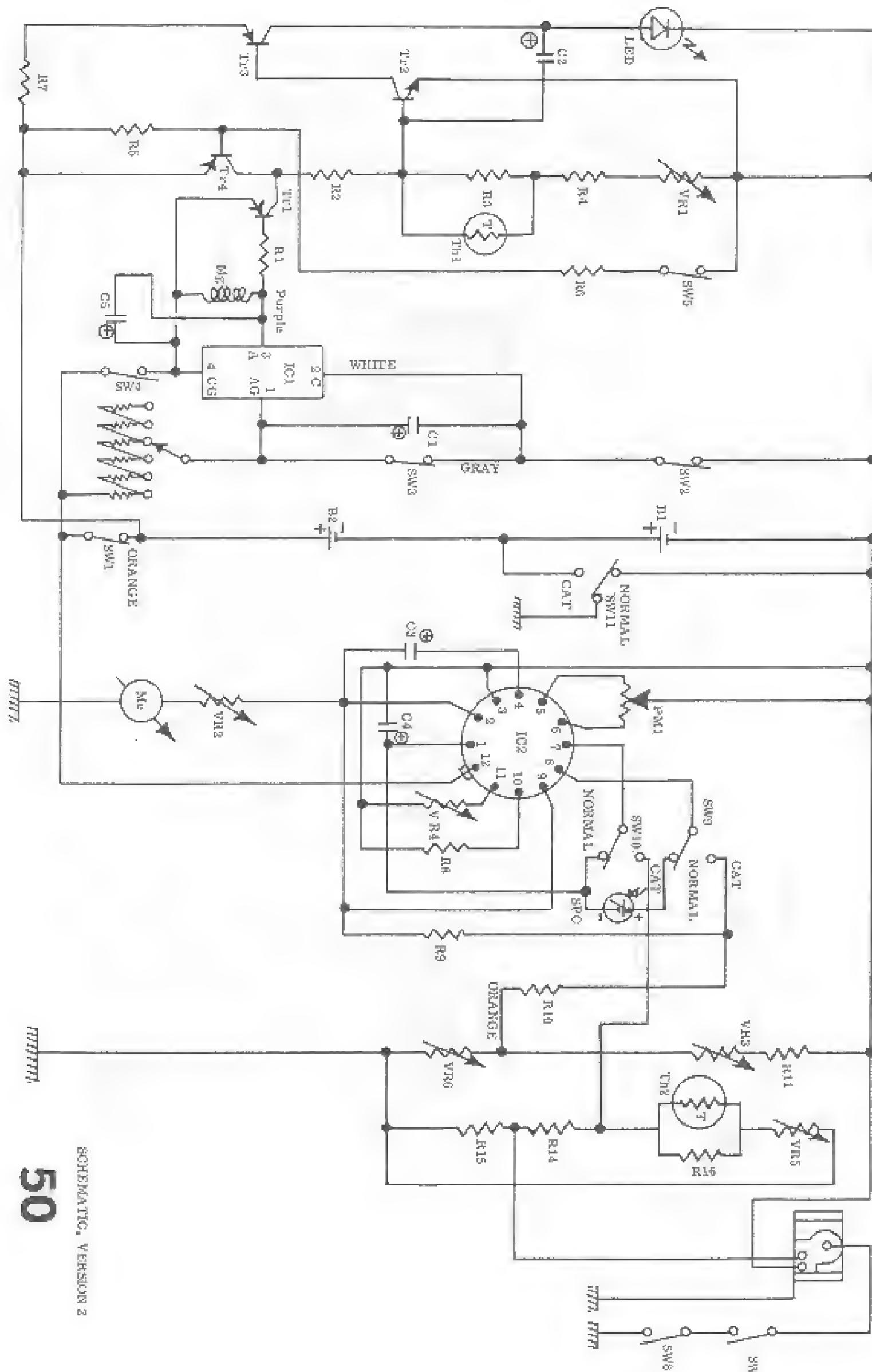
SCHEMATIC VERSION 1
DRAWING COURTESY OF CANON

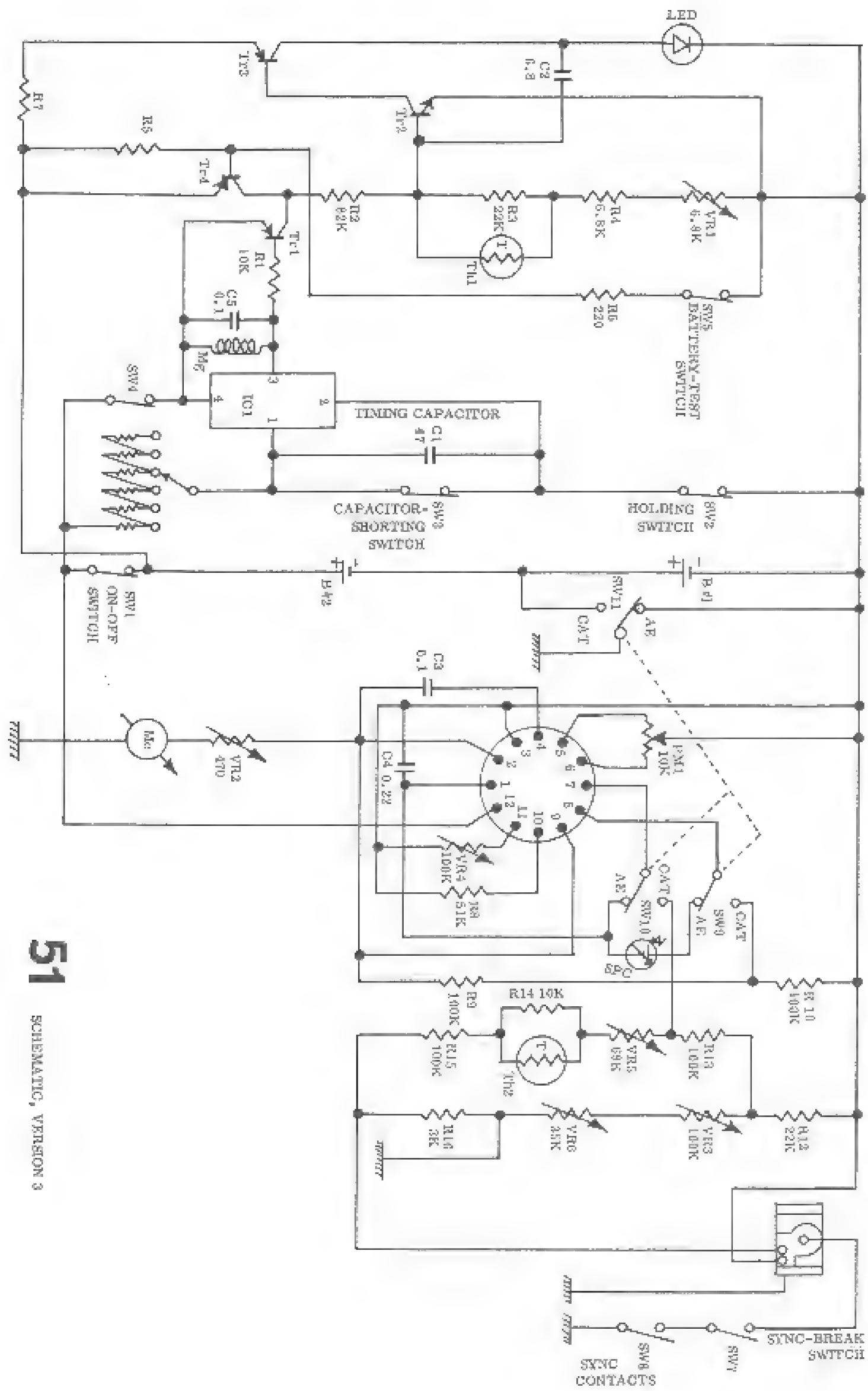


DRAWING COURTESY OF CANON

PICTORIAL VERSION 1

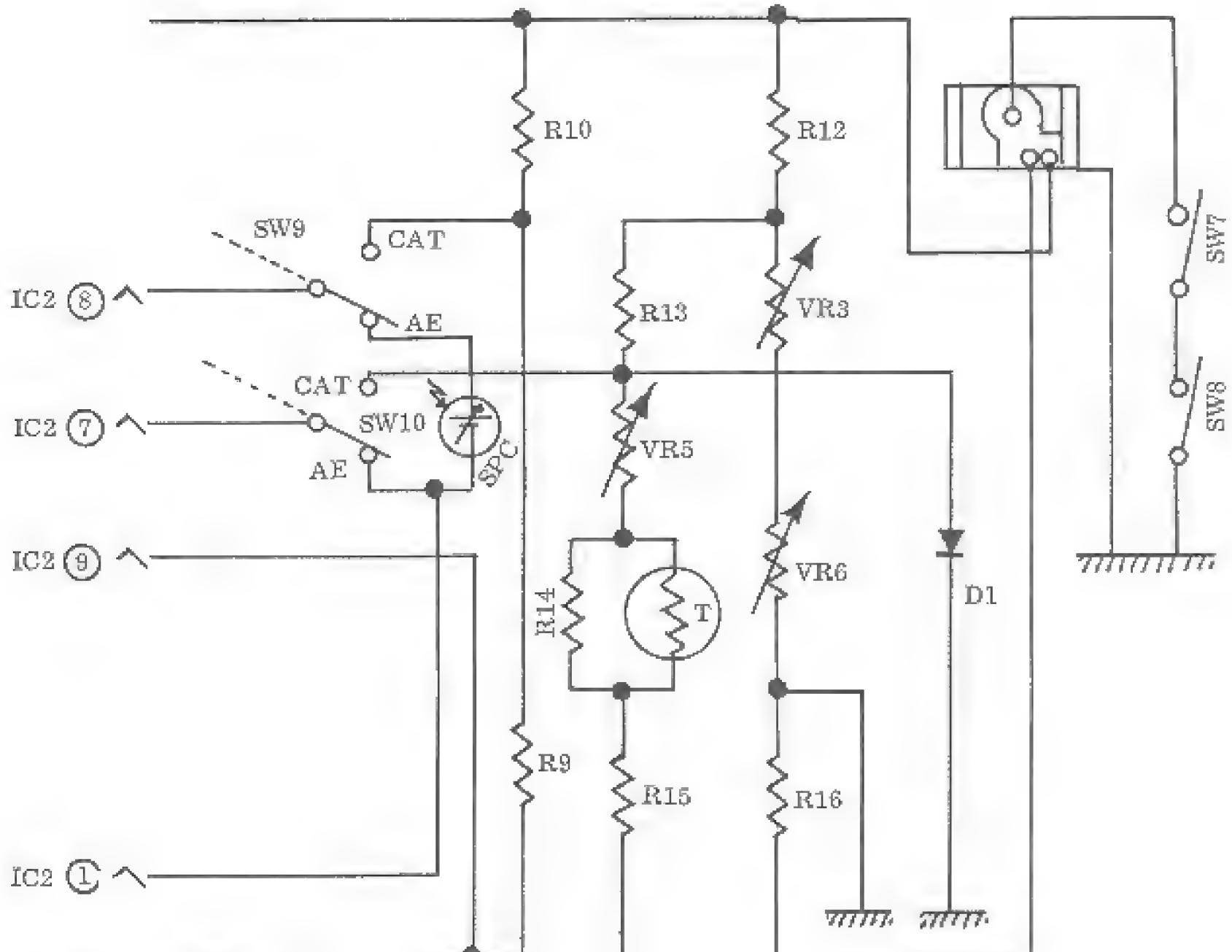
49





51

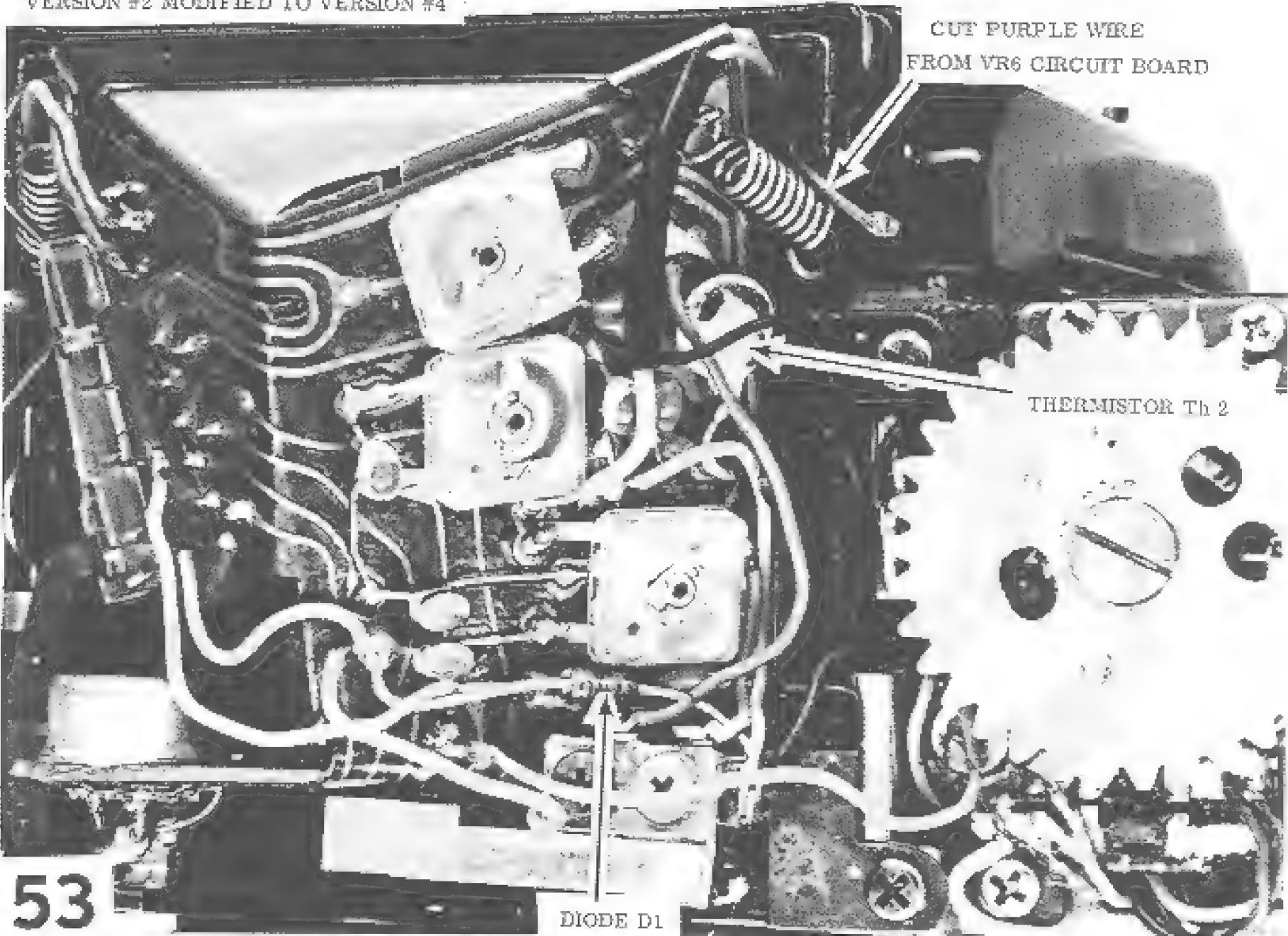
SCHEMATIC, VERSION 3



52

VERSION 4

VERSION #2 MODIFIED TO VERSION #4



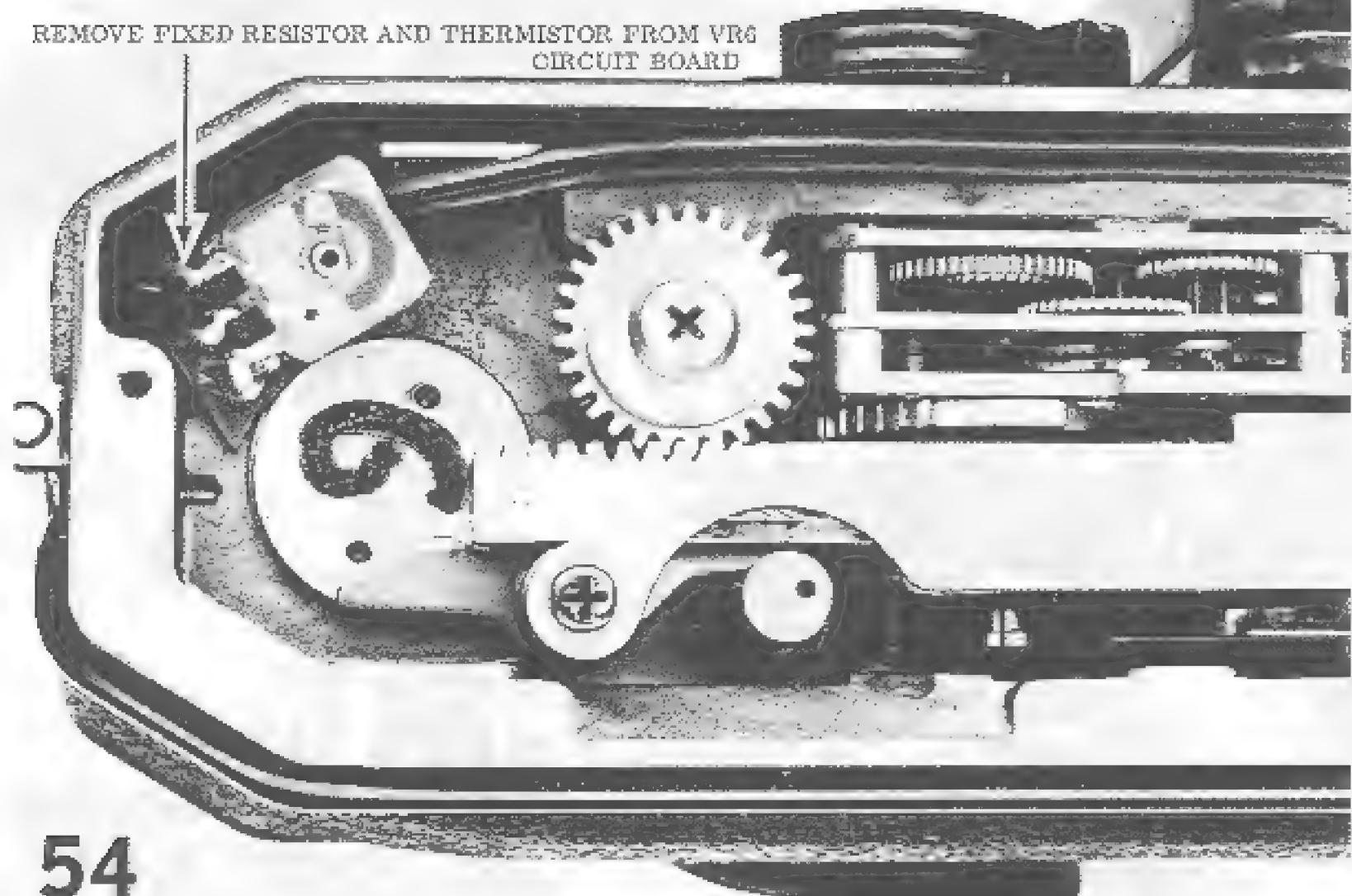
53

DIODE D1

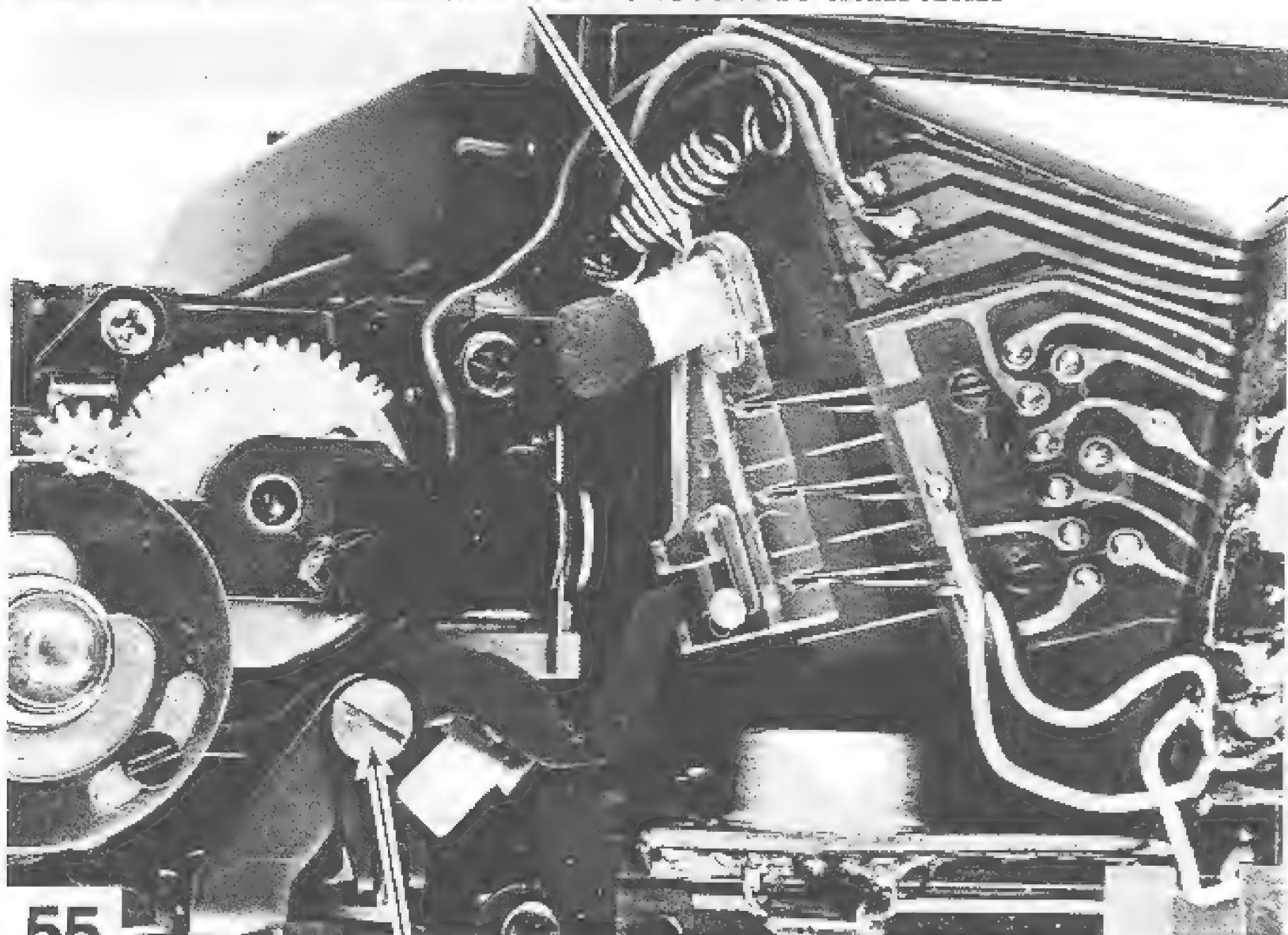
↑
Difference
to

VERSION #2 MODIFIED TO VERSION #4

REMOVE FIXED RESISTOR AND THERMISTOR FROM VRG
CIRCUIT BOARD



1. WEDGE CATS-NORMAL SWITCHING SLIDE TO KEEP CATS-NORMAL SWITCHES CLOSED



55

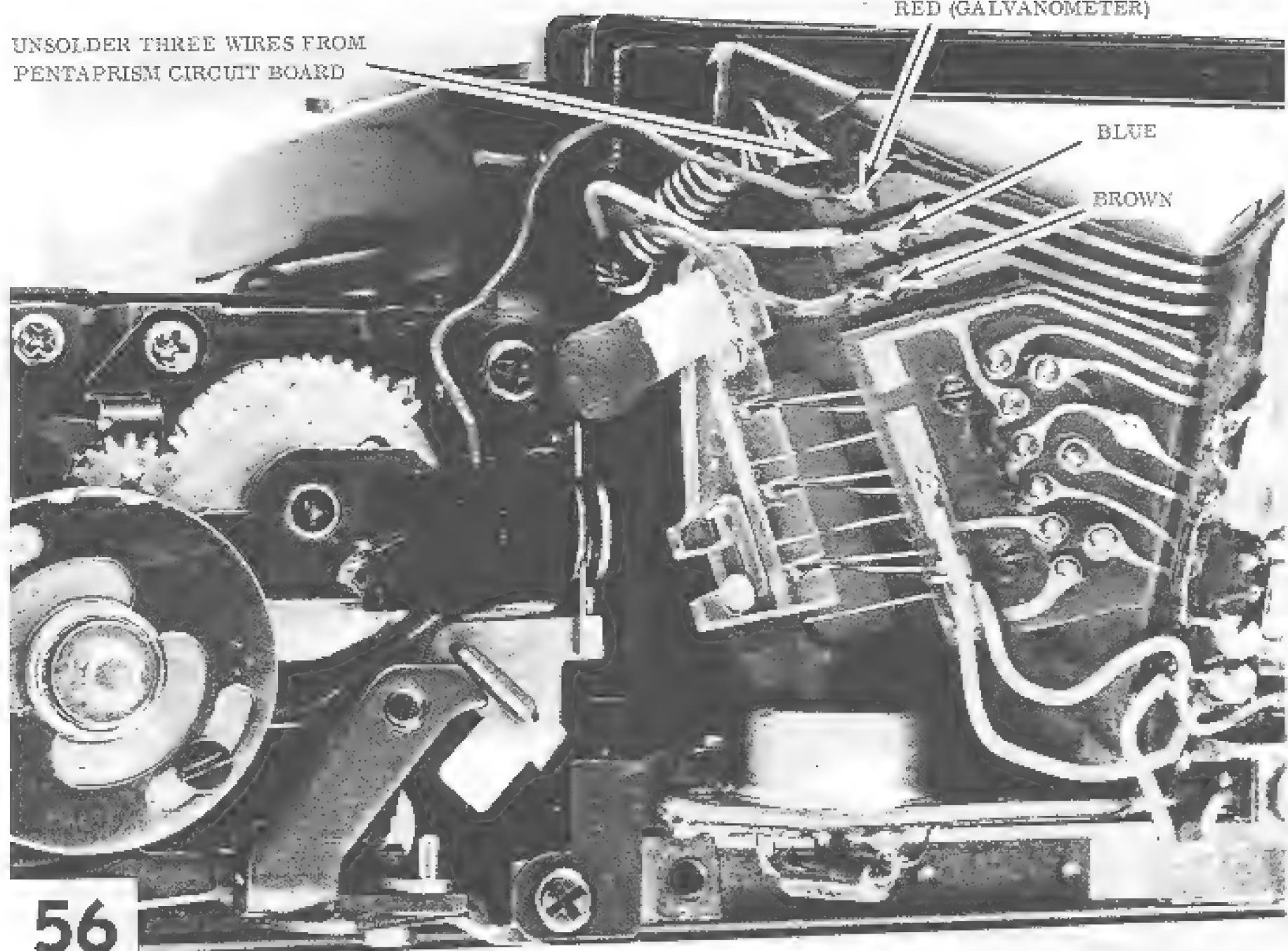
2. REMOVE SHOULDER SCREW AND TAKE OUT CATS-NORMAL SELECTOR LEVER

UNSOOLDER THREE WIRES FROM
PENTAPRISM CIRCUIT BOARD

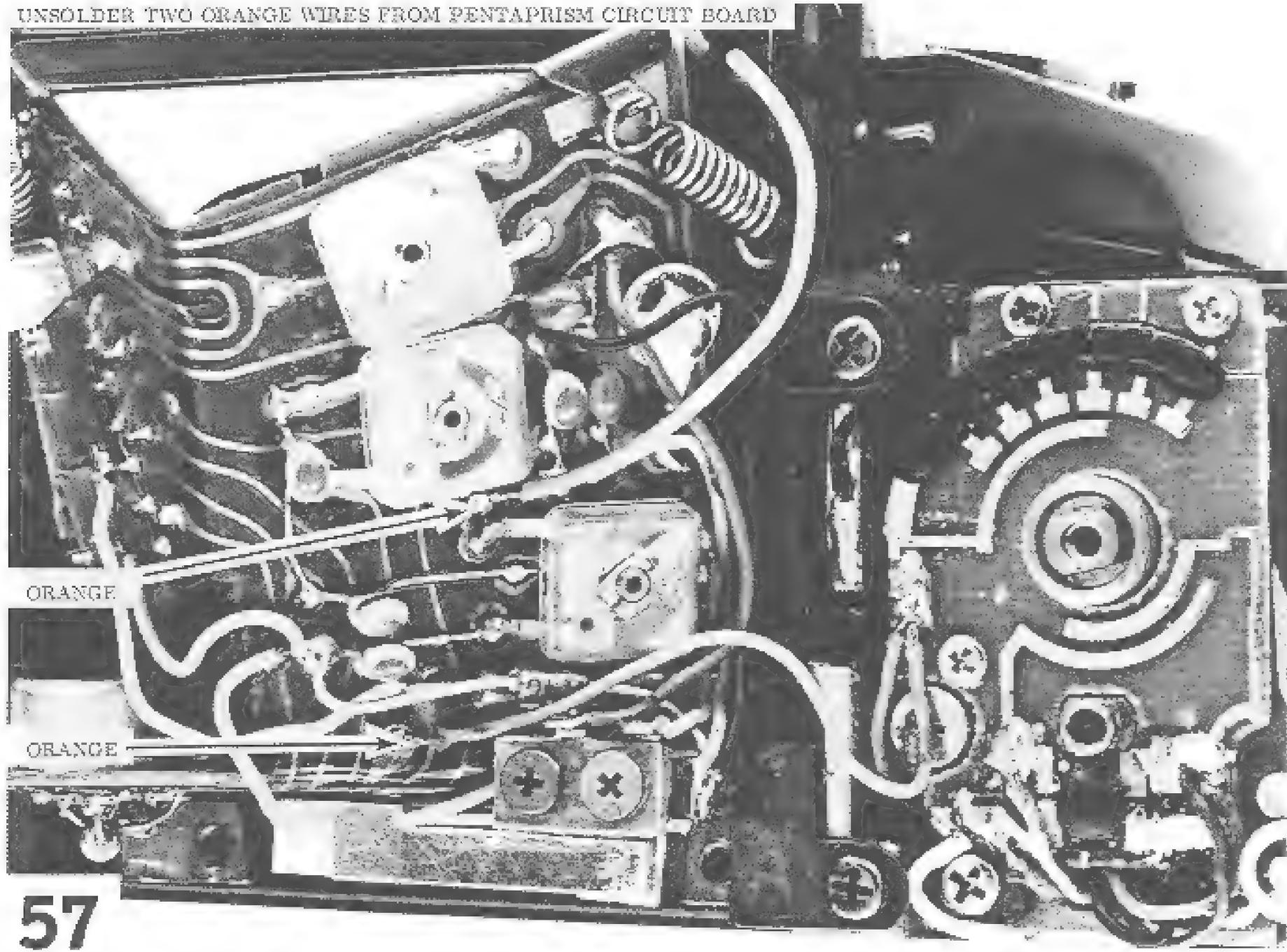
RED (GALVANOMETER)

BLUE

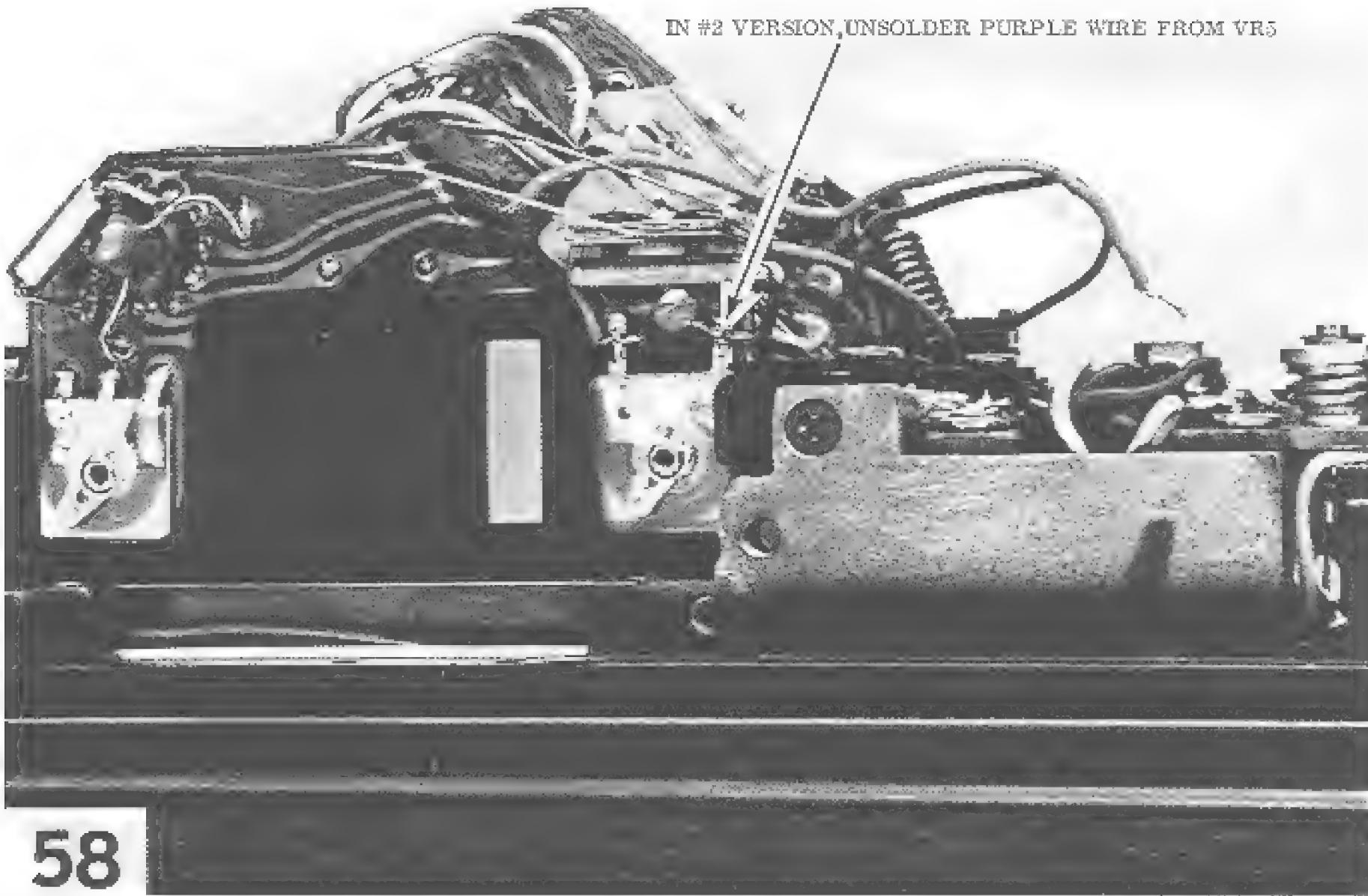
BROWN



UNSOLDER TWO ORANGE WIRES FROM PENTAPRISM CIRCUIT BOARD

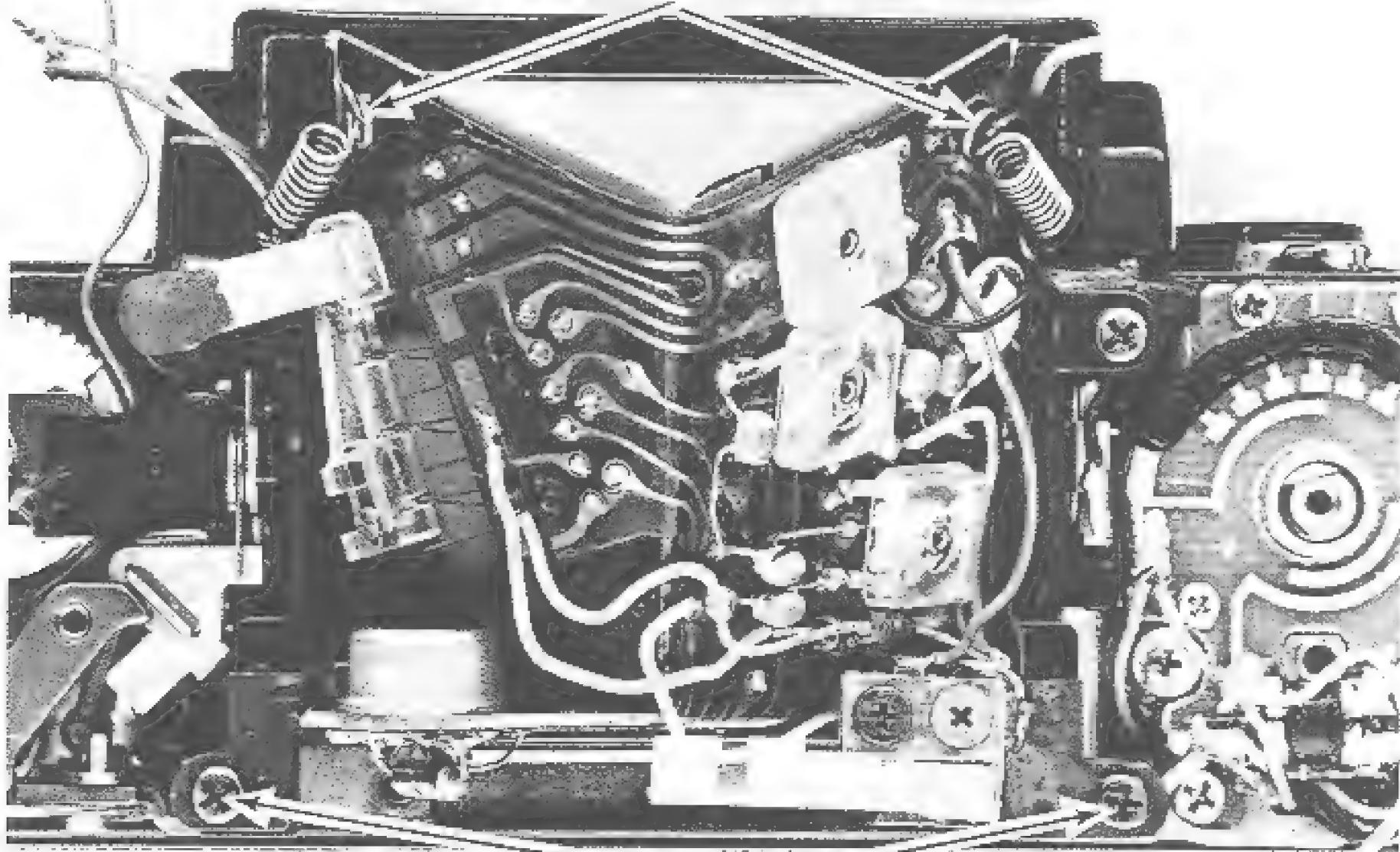


IN #2 VERSION, UNSOLDER PURPLE WIRE FROM VR5



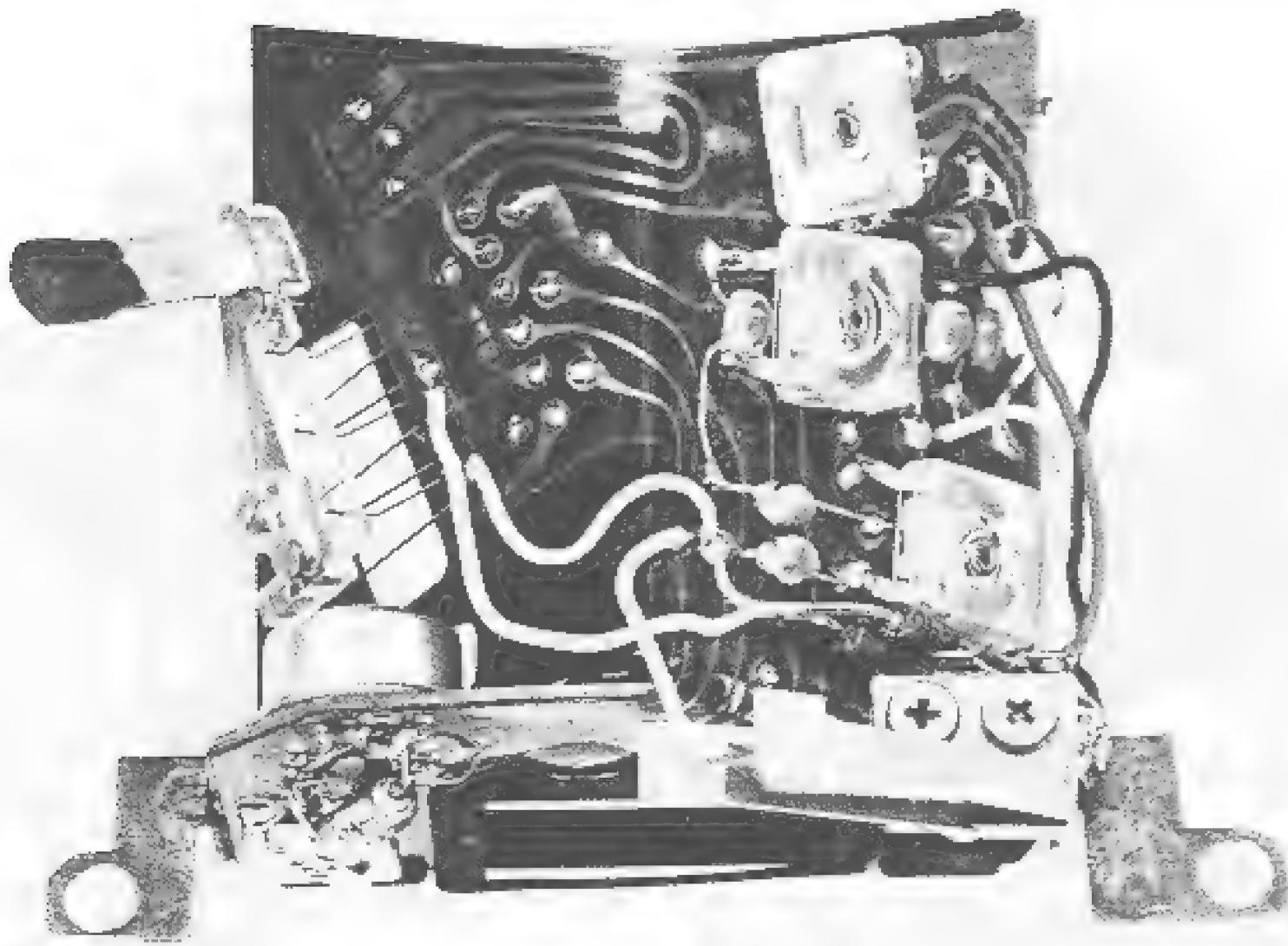
TO REMOVE PENTAPRISM CIRCUIT BOARD:

1. DISCONNECT SPRINGS AND LIFT OFF PRISM RETAINER

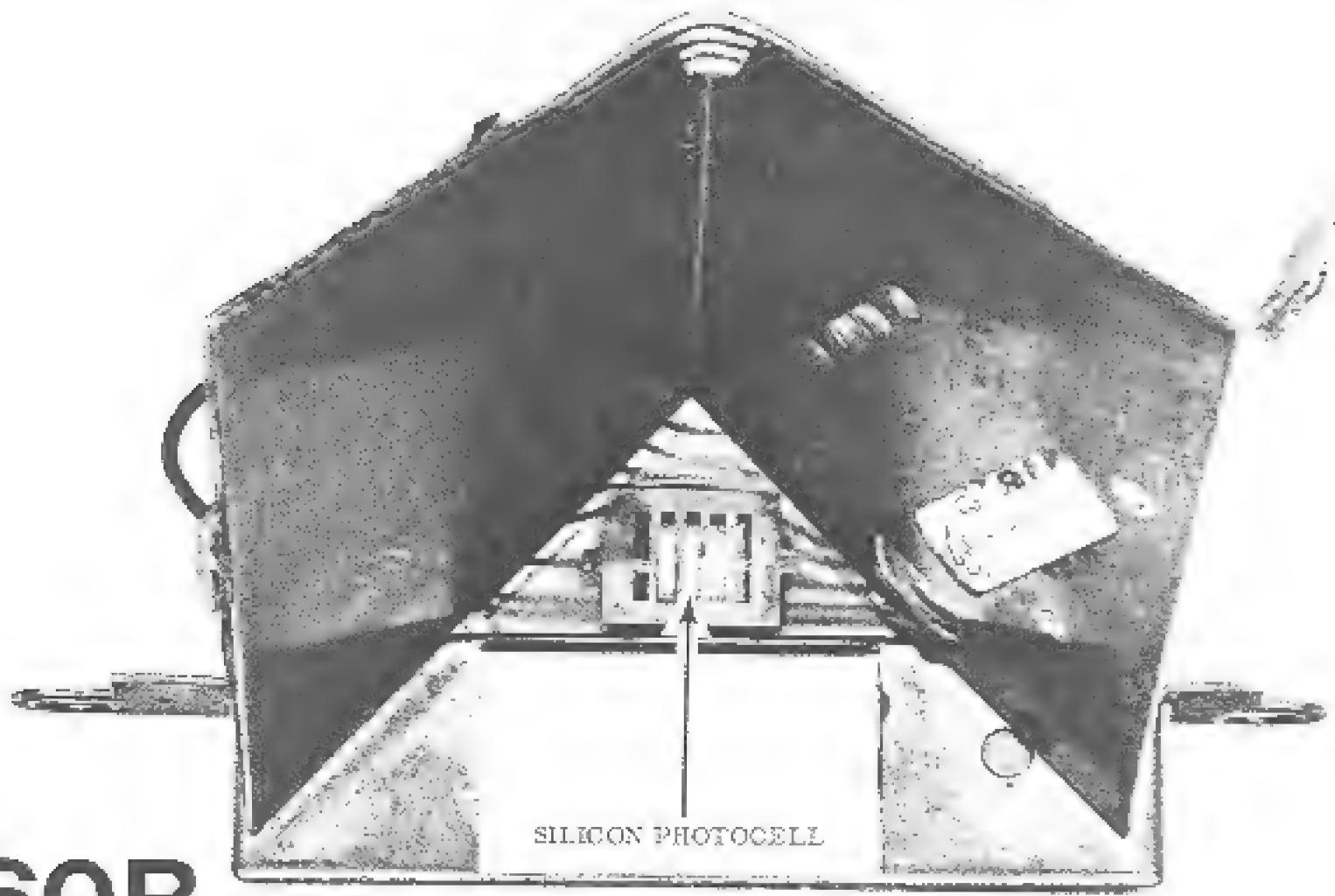


2. REMOVE TWO CIRCUIT-BOARD SCREWS
3. LIFT OFF PENTAPRISM CIRCUIT BOARD

PENTAPRISM CIRCUIT BOARD (VERSION #4)

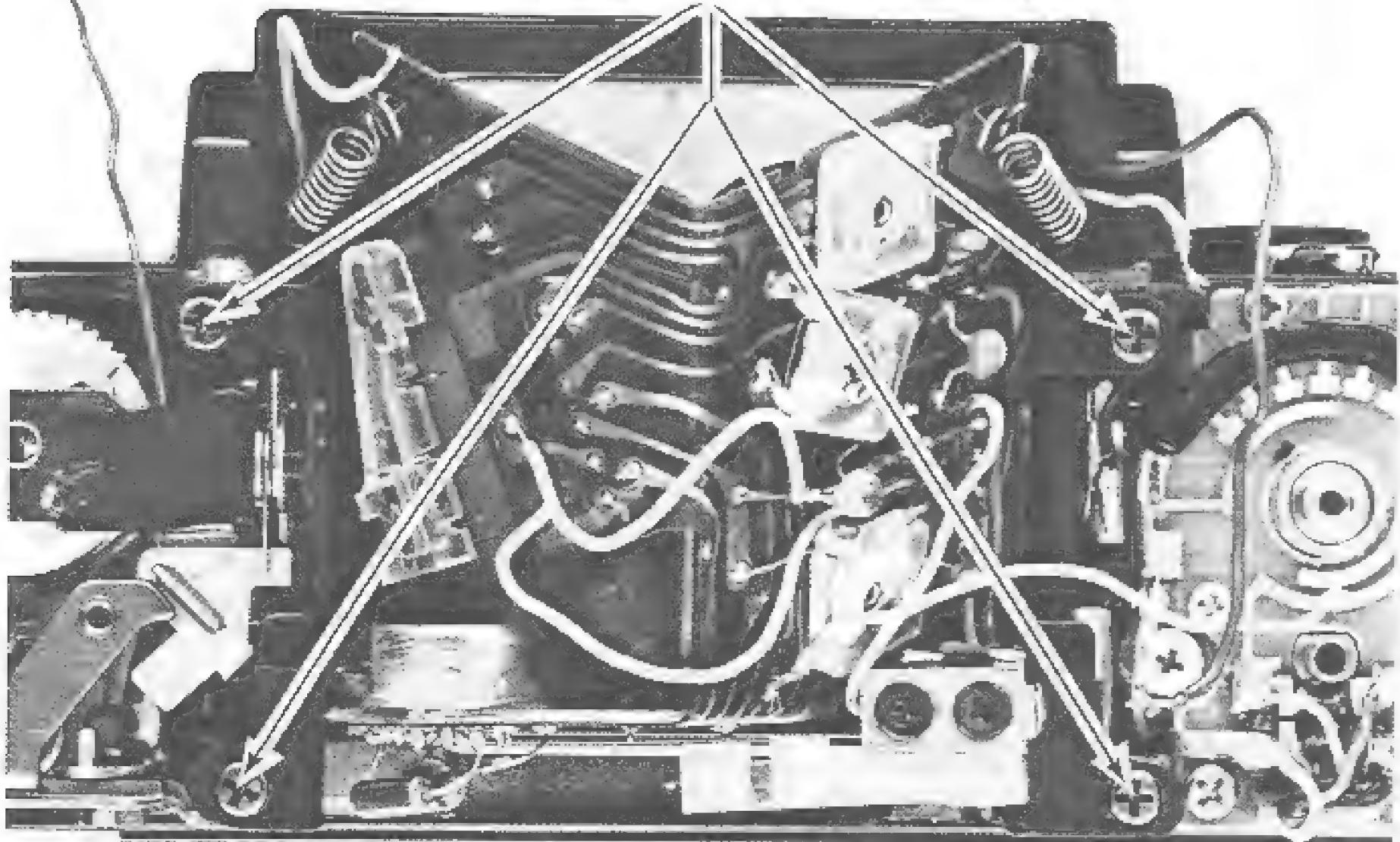


60A

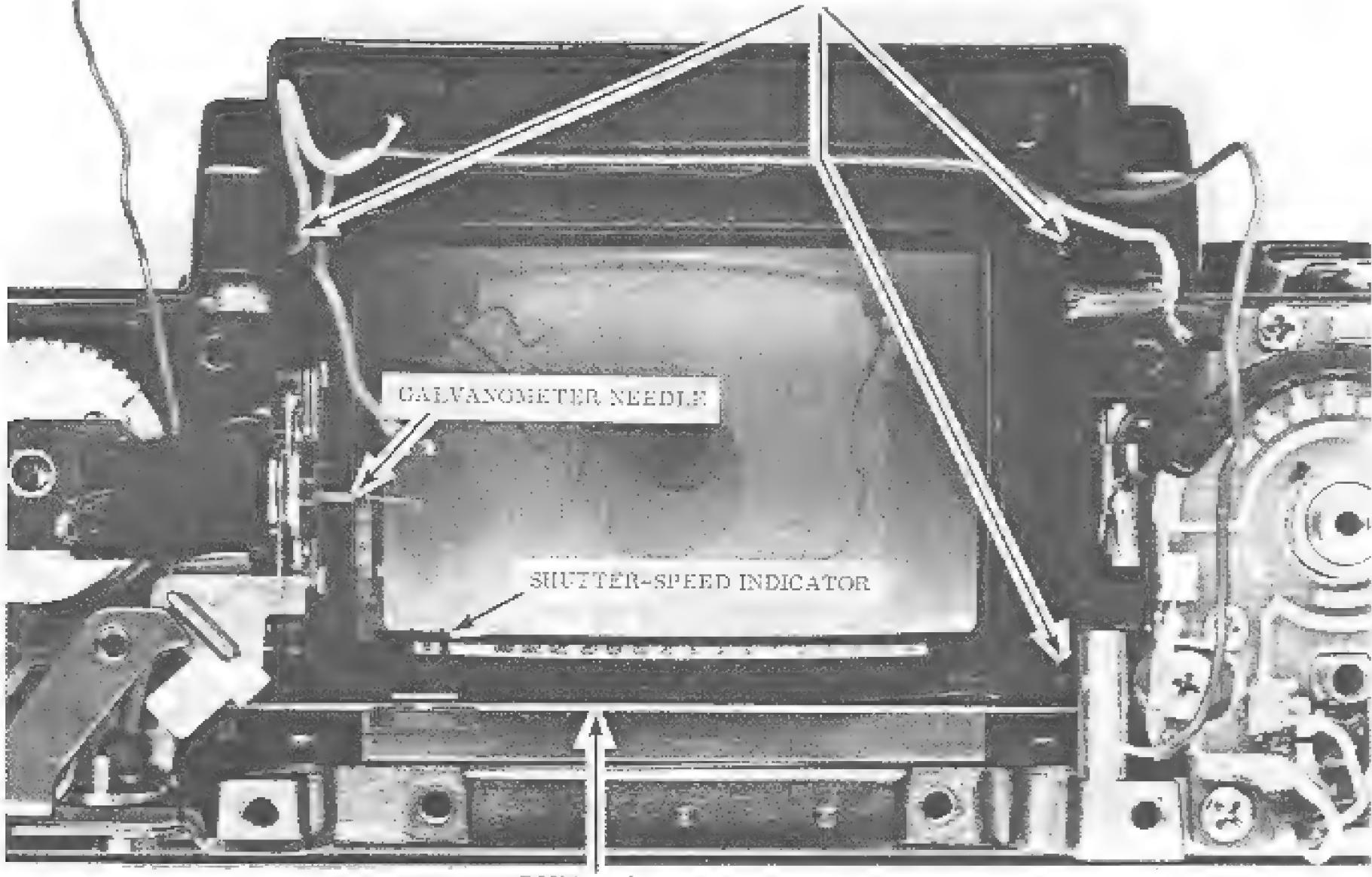


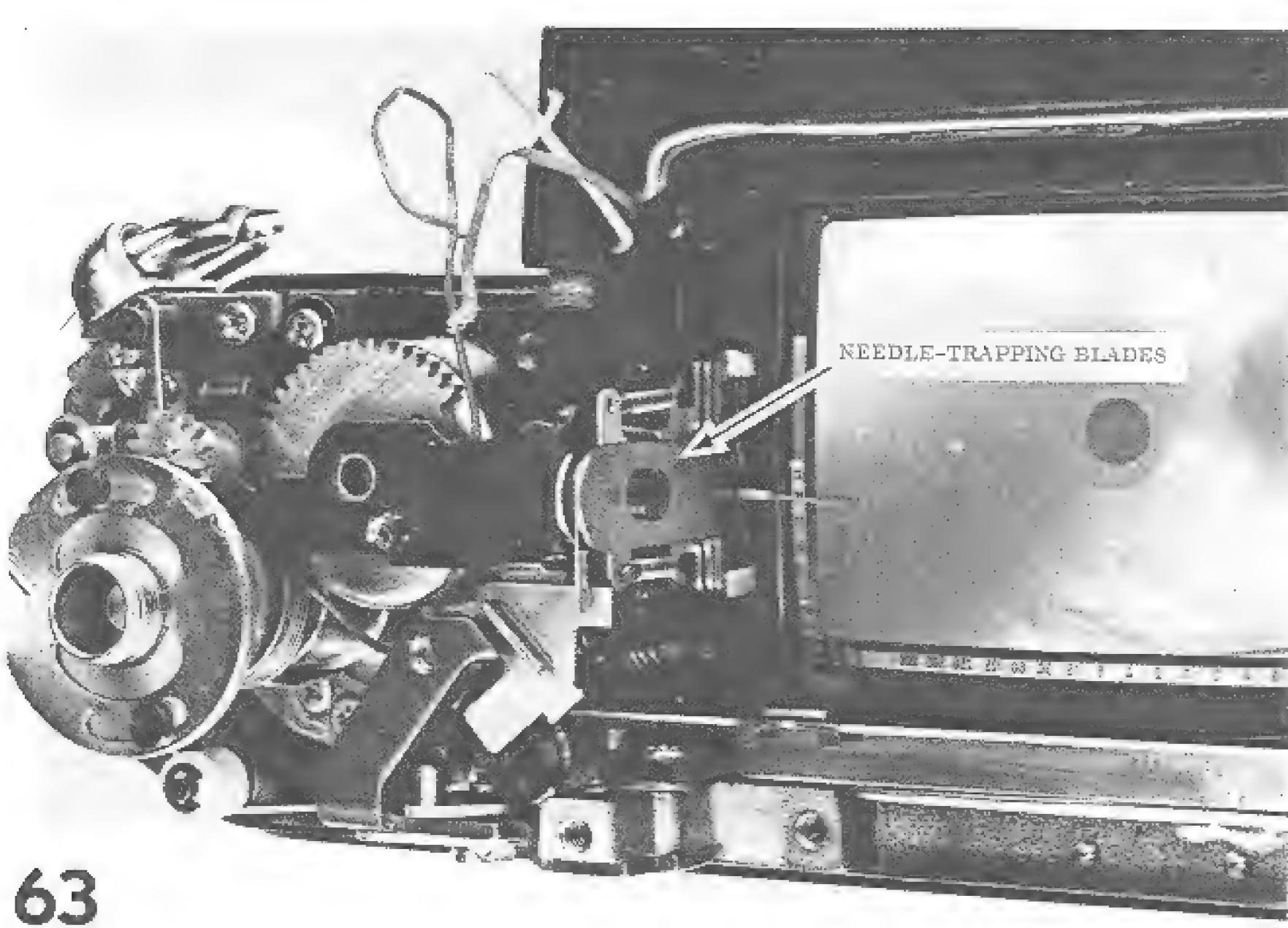
60B

TO REMOVE COMPLETE PENTAPRISM UNIT, TAKE OUT FOUR SCREWS

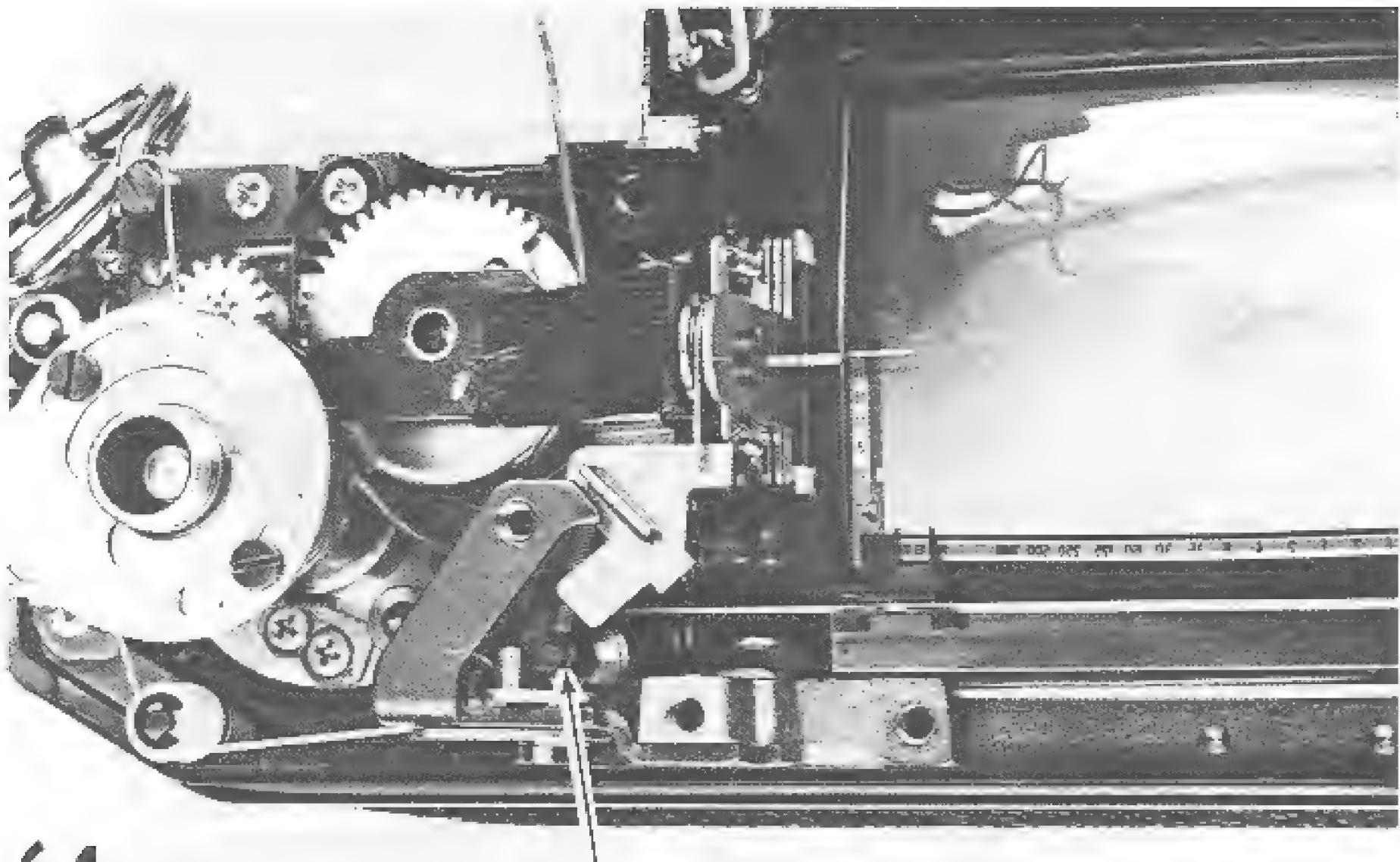


FOCUSING-SCREEN ADJUSTING SCREWS



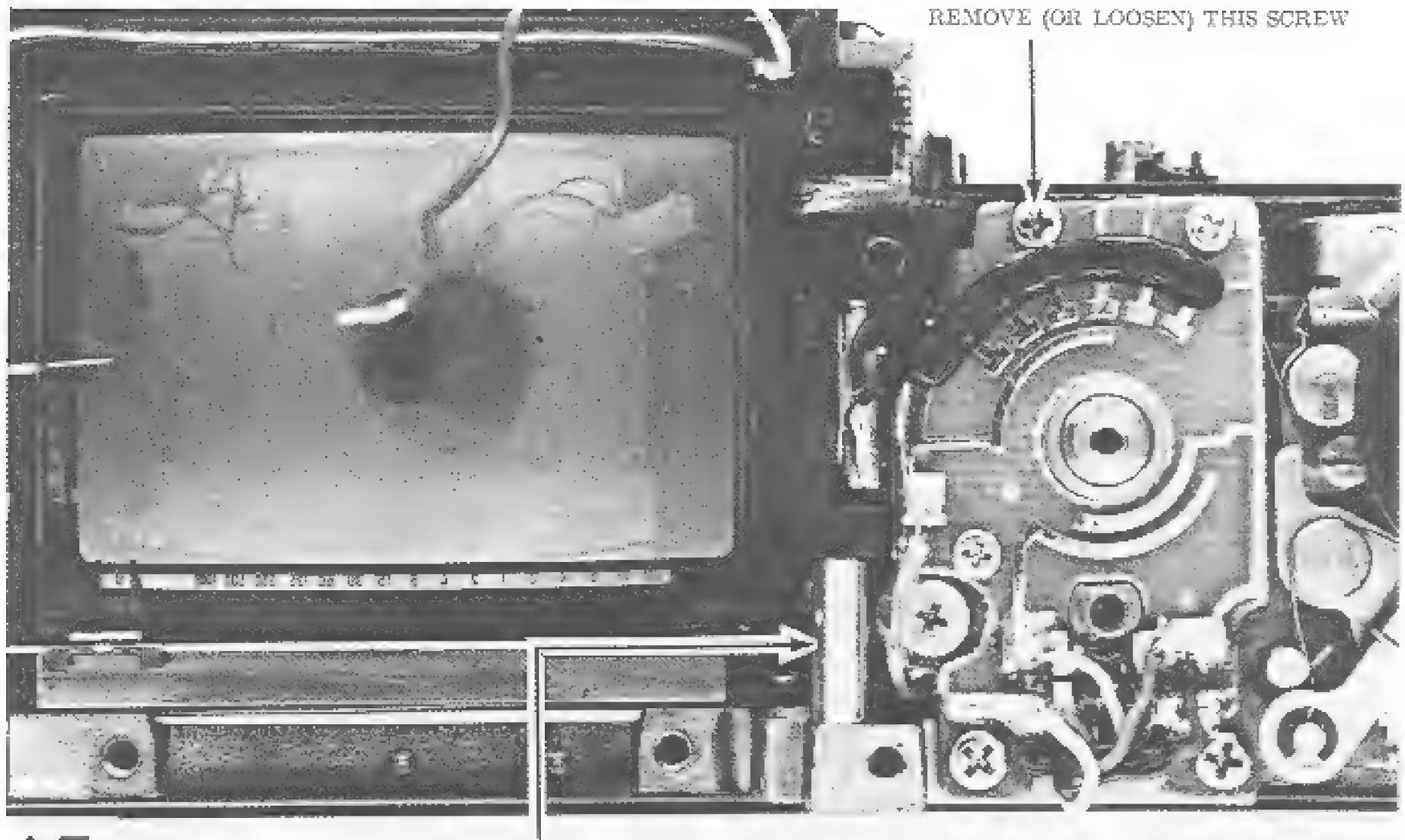


63



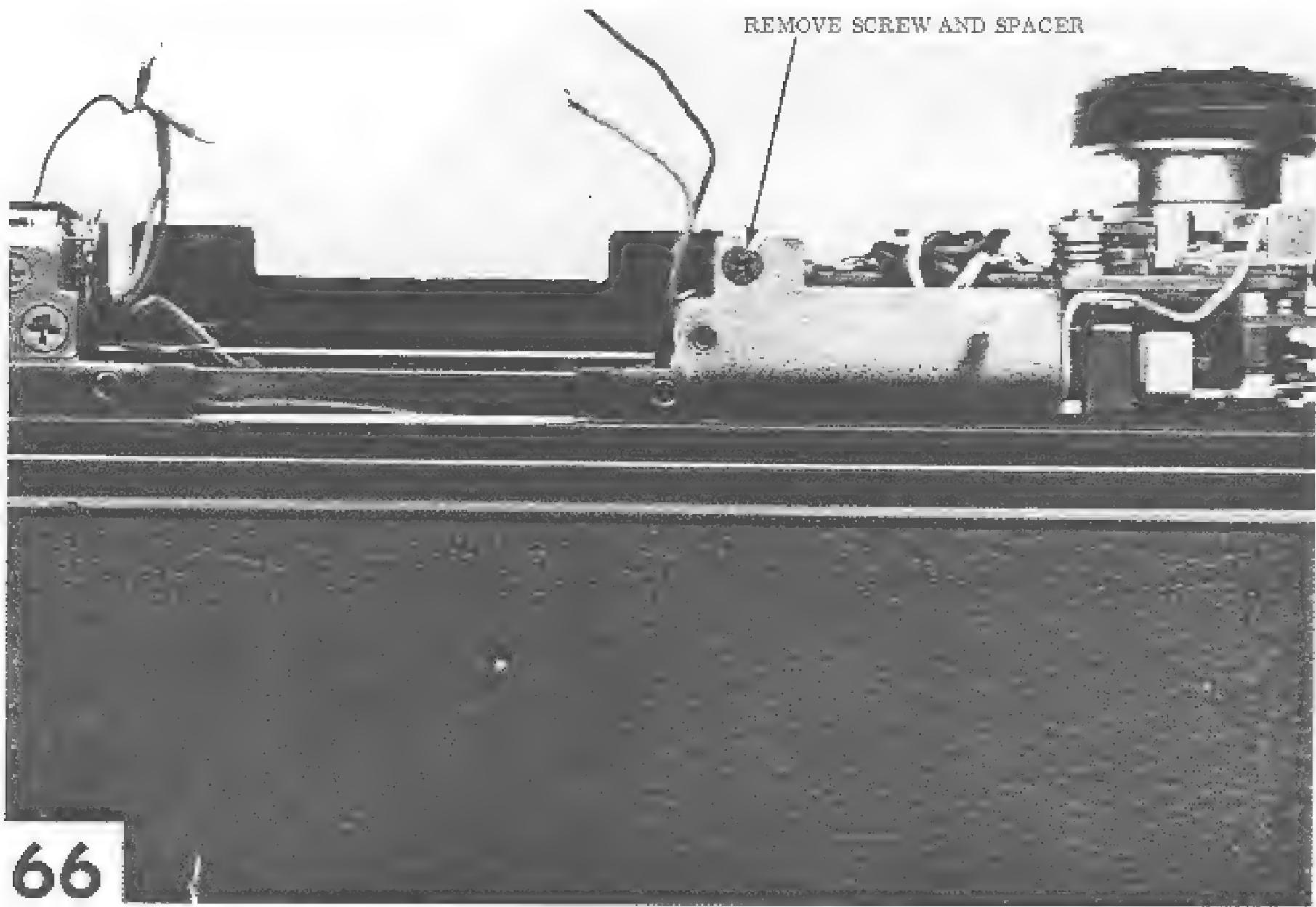
64

DISCONNECT GALVANOMETER SPRING

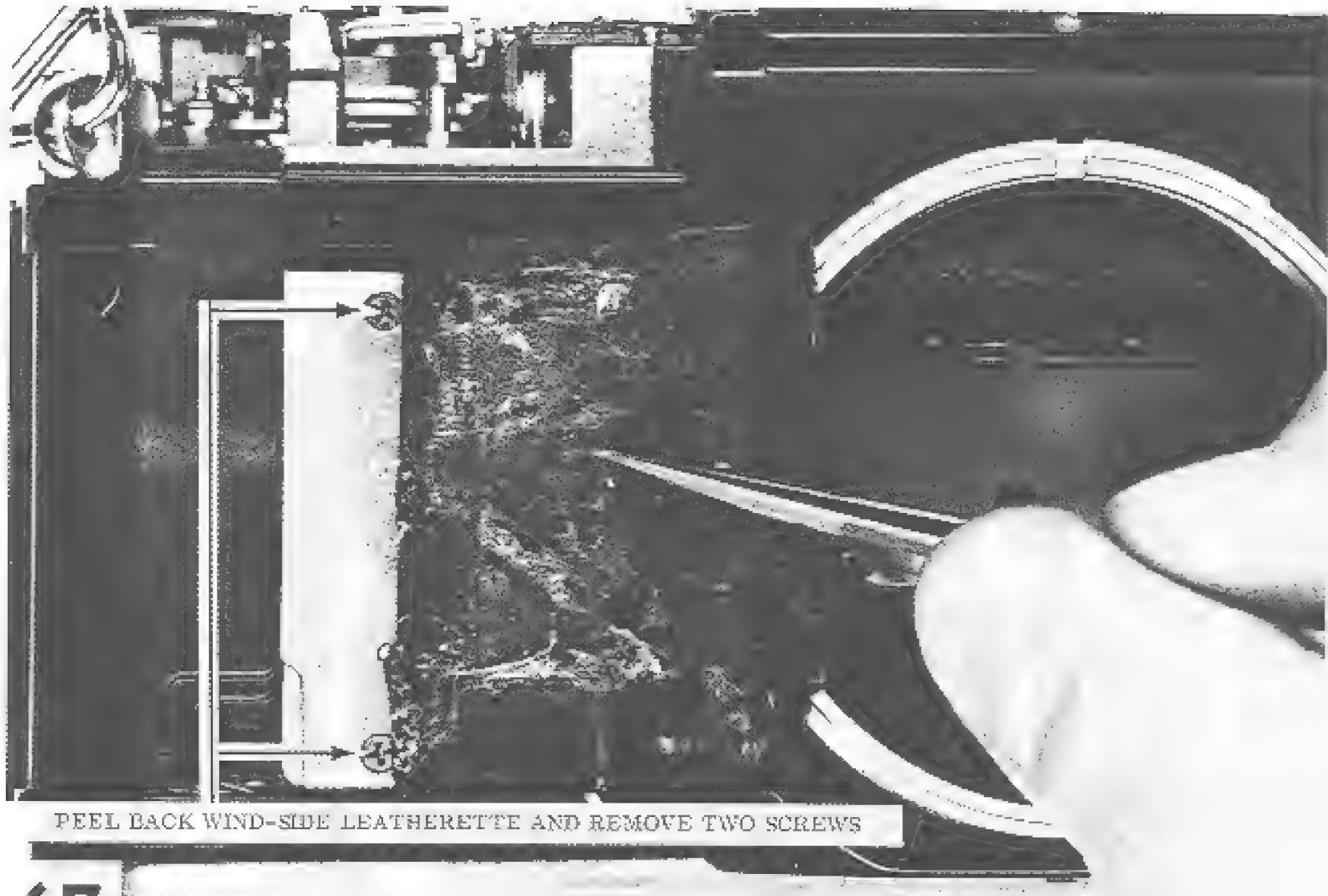


65

NOTE SPACER BETWEEN MIRROR CAGE AND CAMERA BODY -- SPACER WILL BE LOOSE WHEN YOU REMOVE THE SCREW SHOWN IN THE NEXT ILLUSTRATION

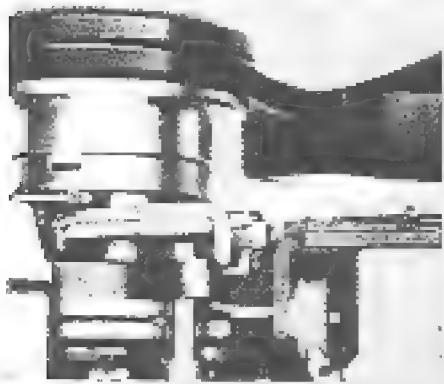


66

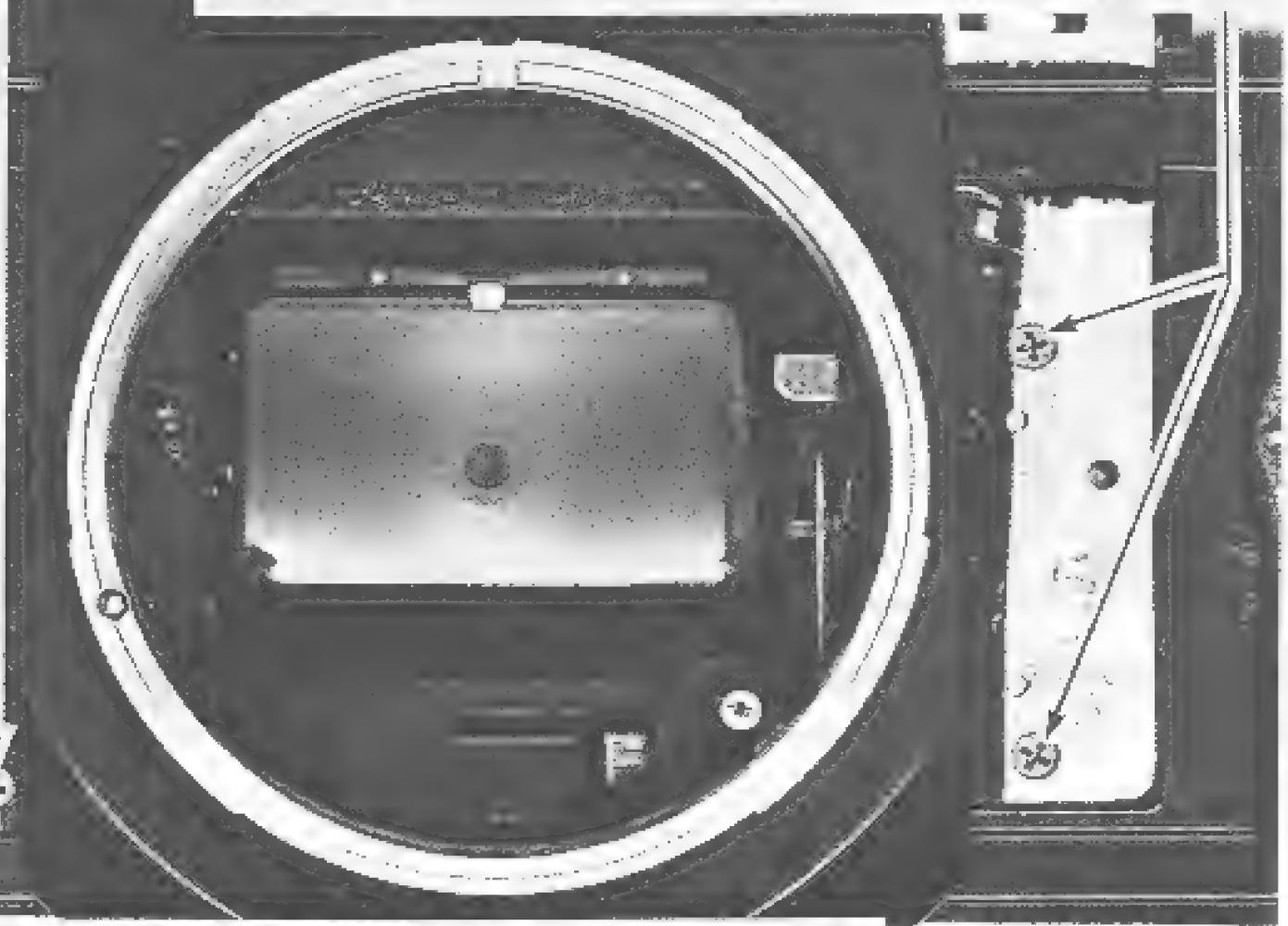


PEEL BACK WIND-SIDE LEATHERETTE AND REMOVE TWO SCREWS

1. PEEL BACK CORNER OF WIND-SIDE LEATHERETTE (SHOWN CUTAWAY HERE) AND REMOVE SCREW



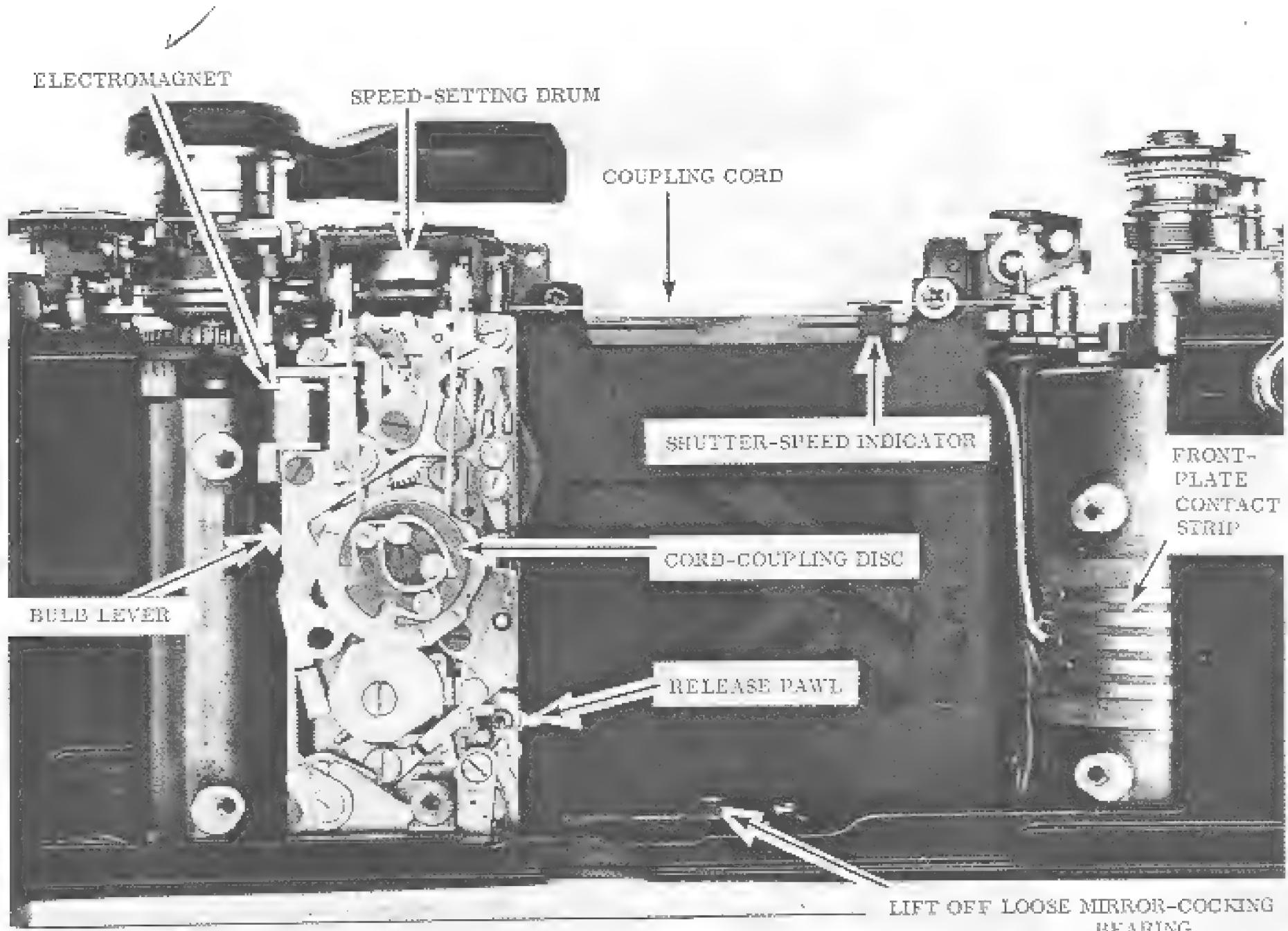
2. PEEL BACK REWIND-SIDE LEATHERETTE AND REMOVE TWO SCREWS



3. LIFT OUT FRONT-PLATE/MIRROR-CAGE ASSEMBLY

68

Shutter can be released when replacing front plate



69

SHUTTER SET TO "BULB"

Check for stuck shutter magnet if shutter is open

PULLEYS FOR SHUTTER-SETTING CORDS

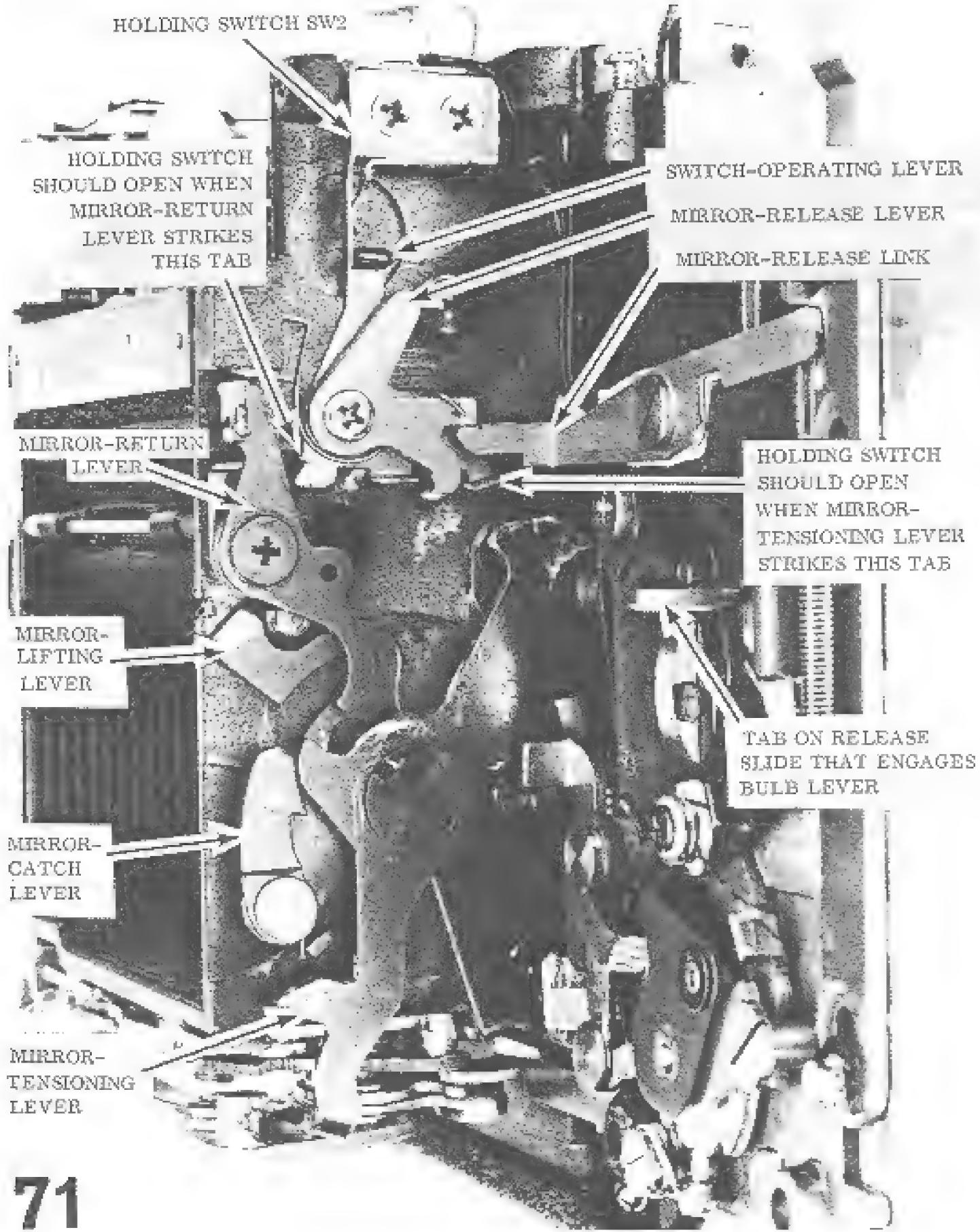
ADJUSTMENT PULLEY FOR COUPLING CORD

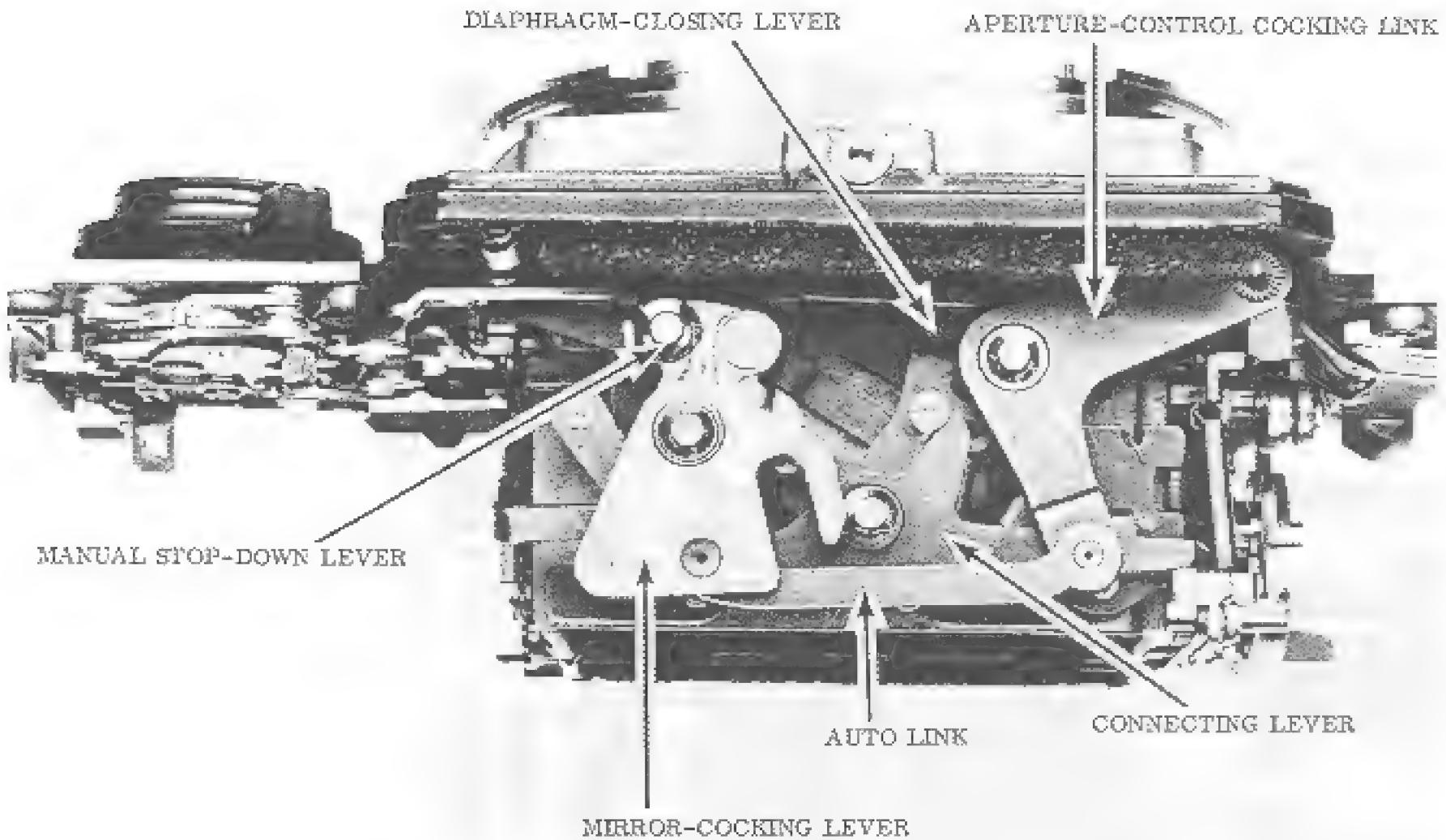
SHUTTER-
SETTING
CORDS

SHUTTER SET TO 30 SECONDS

MIRROR-RETURN POST

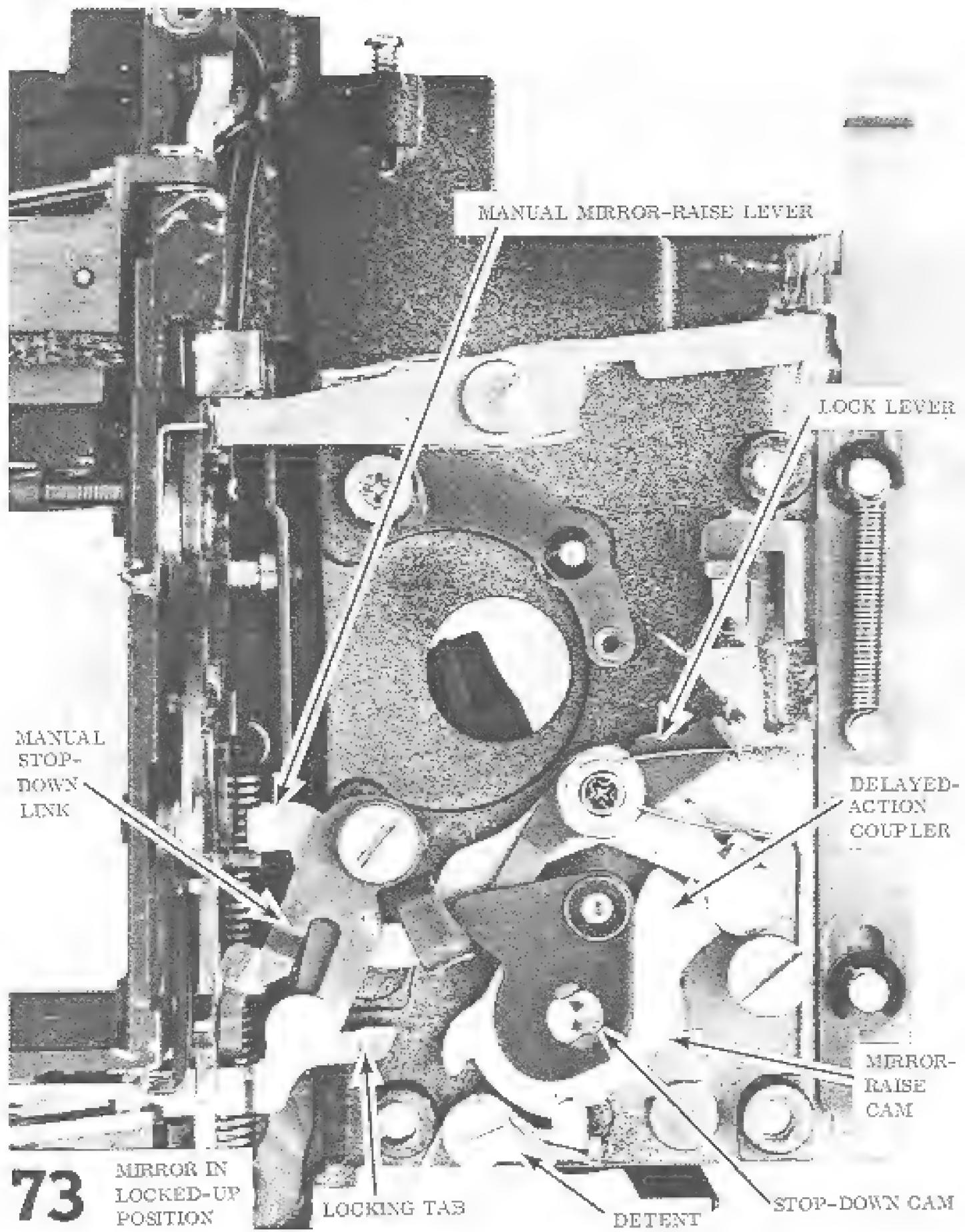
CAPACITOR-SHORTING SWITCH SW3



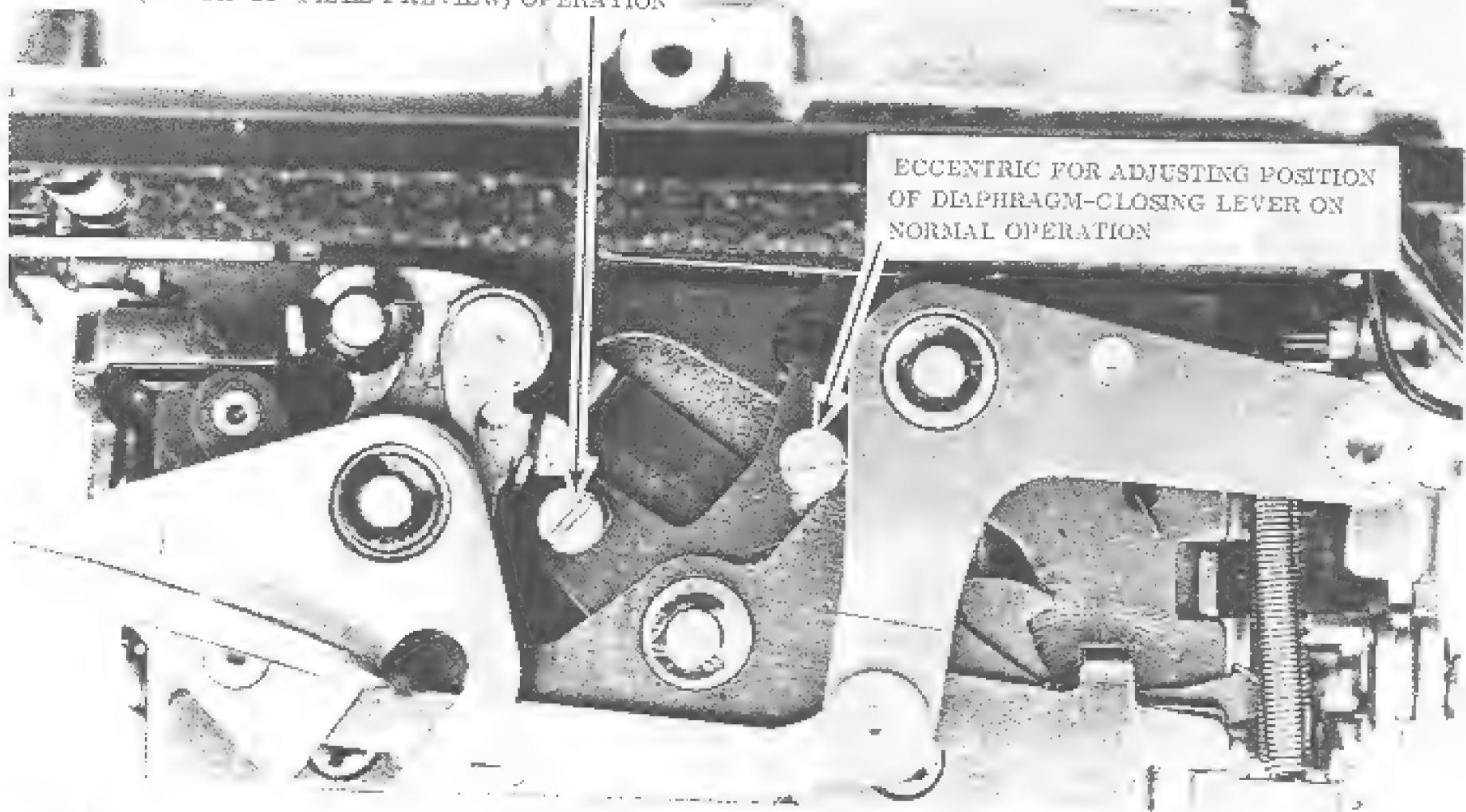


72

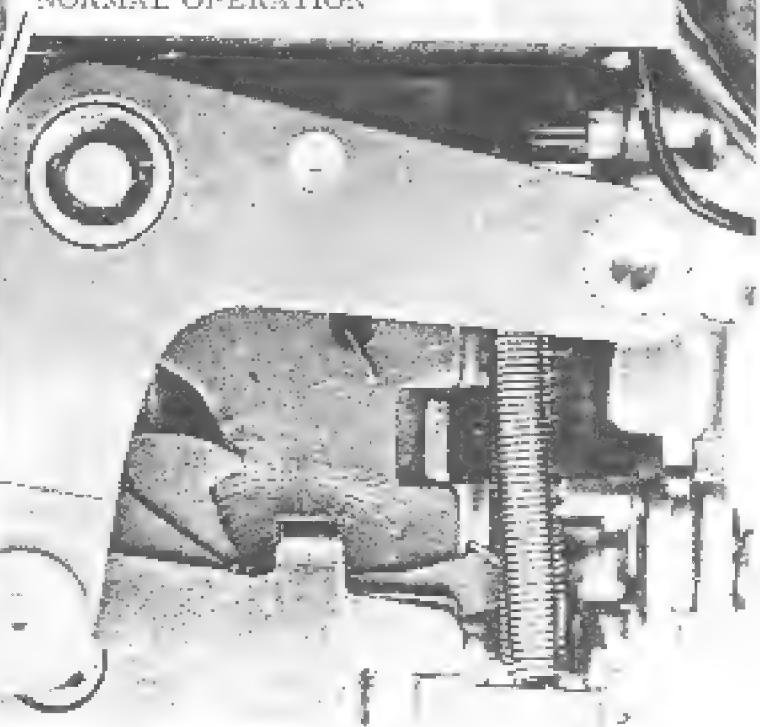
BOTTOM OF MIRROR CAGE



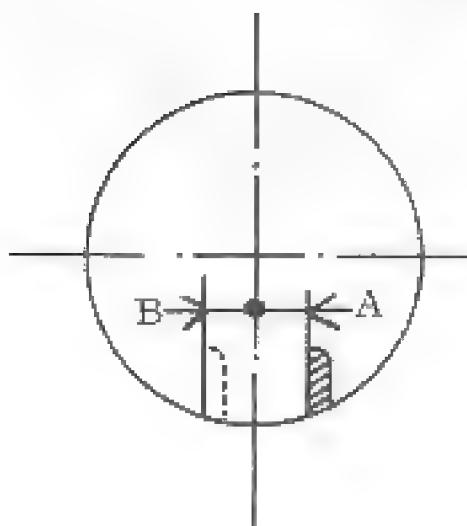
■ ECCENTRIC FOR ADJUSTING POSITION OF
DIAPHRAGM-CLOSING LEVER ON MANUAL
(DEPTH-OF-FIELD PREVIEW) OPERATION



ECCENTRIC FOR ADJUSTING POSITION
OF DIAPHRAGM-CLOSING LEVER ON
NORMAL OPERATION

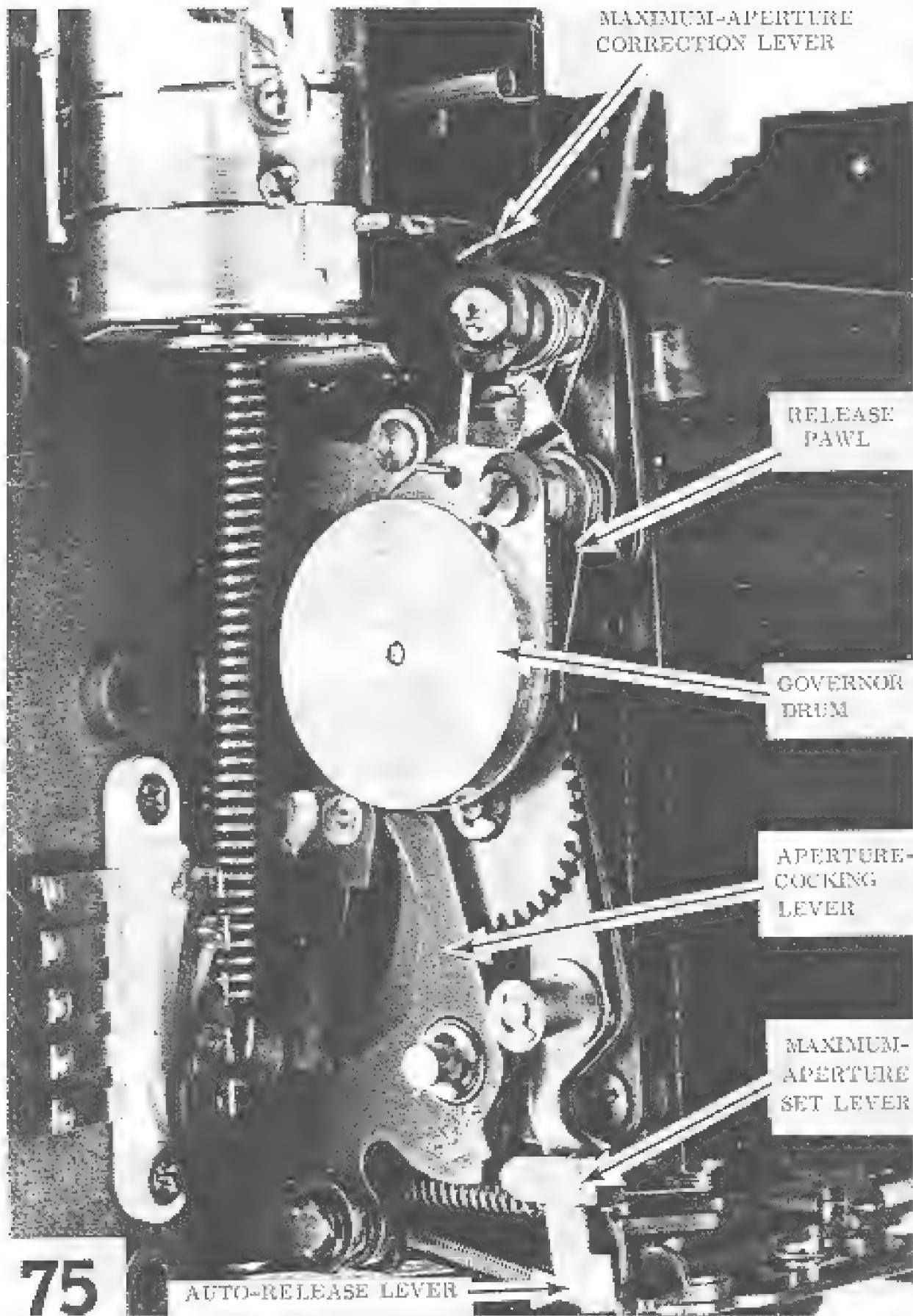


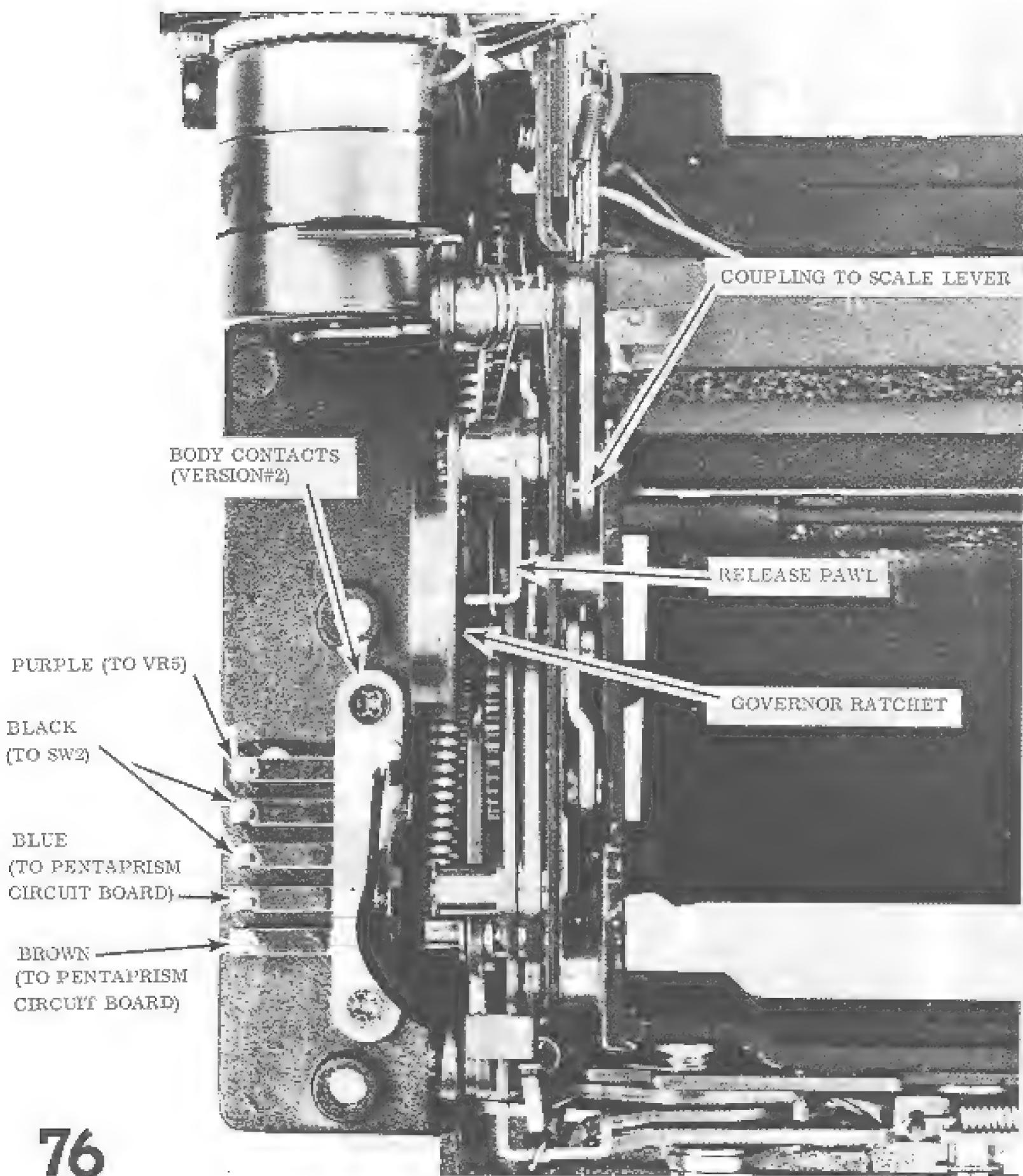
74

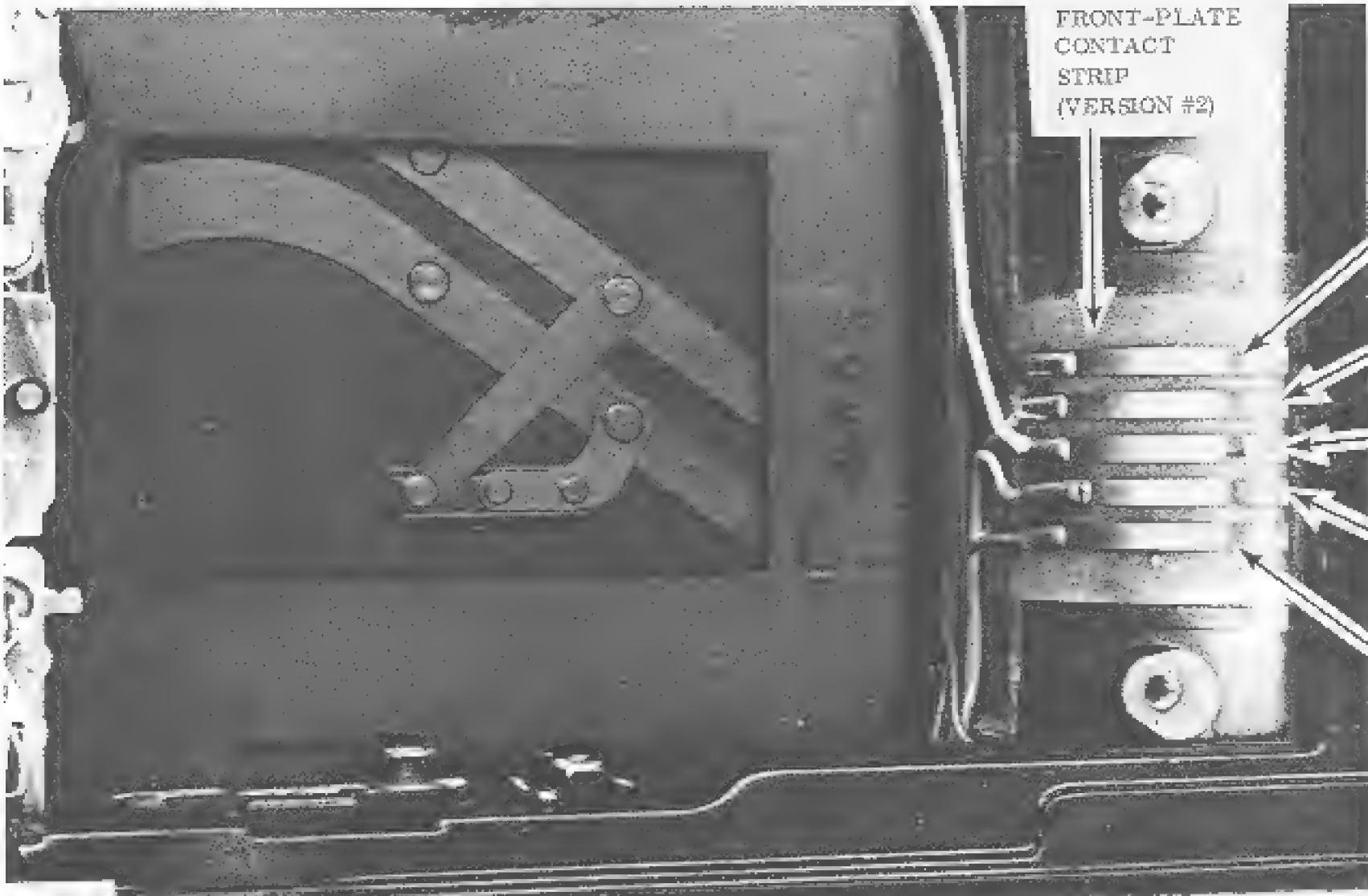


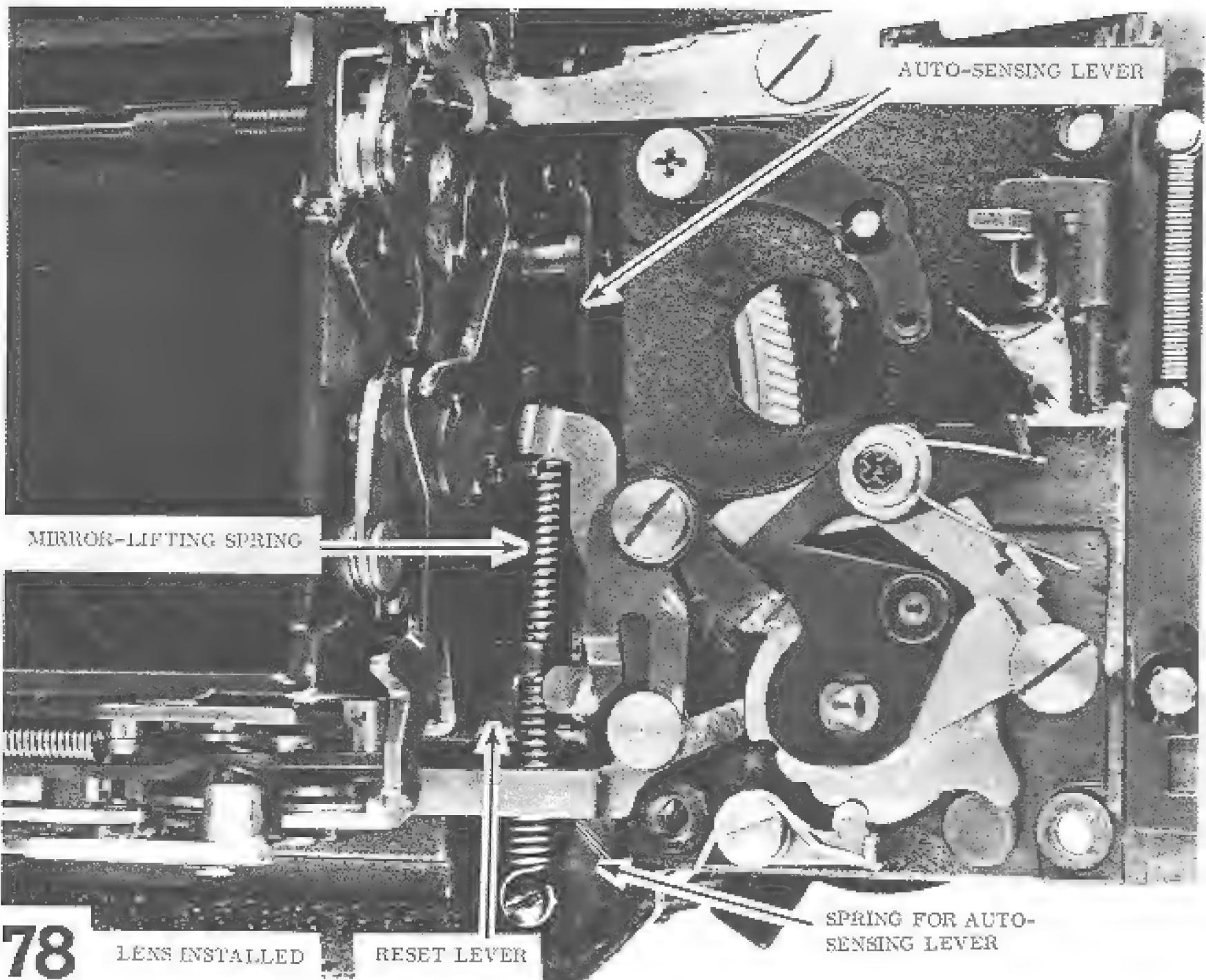
A = more than 5.5 mm

B = 1.8 — 3.2 mm

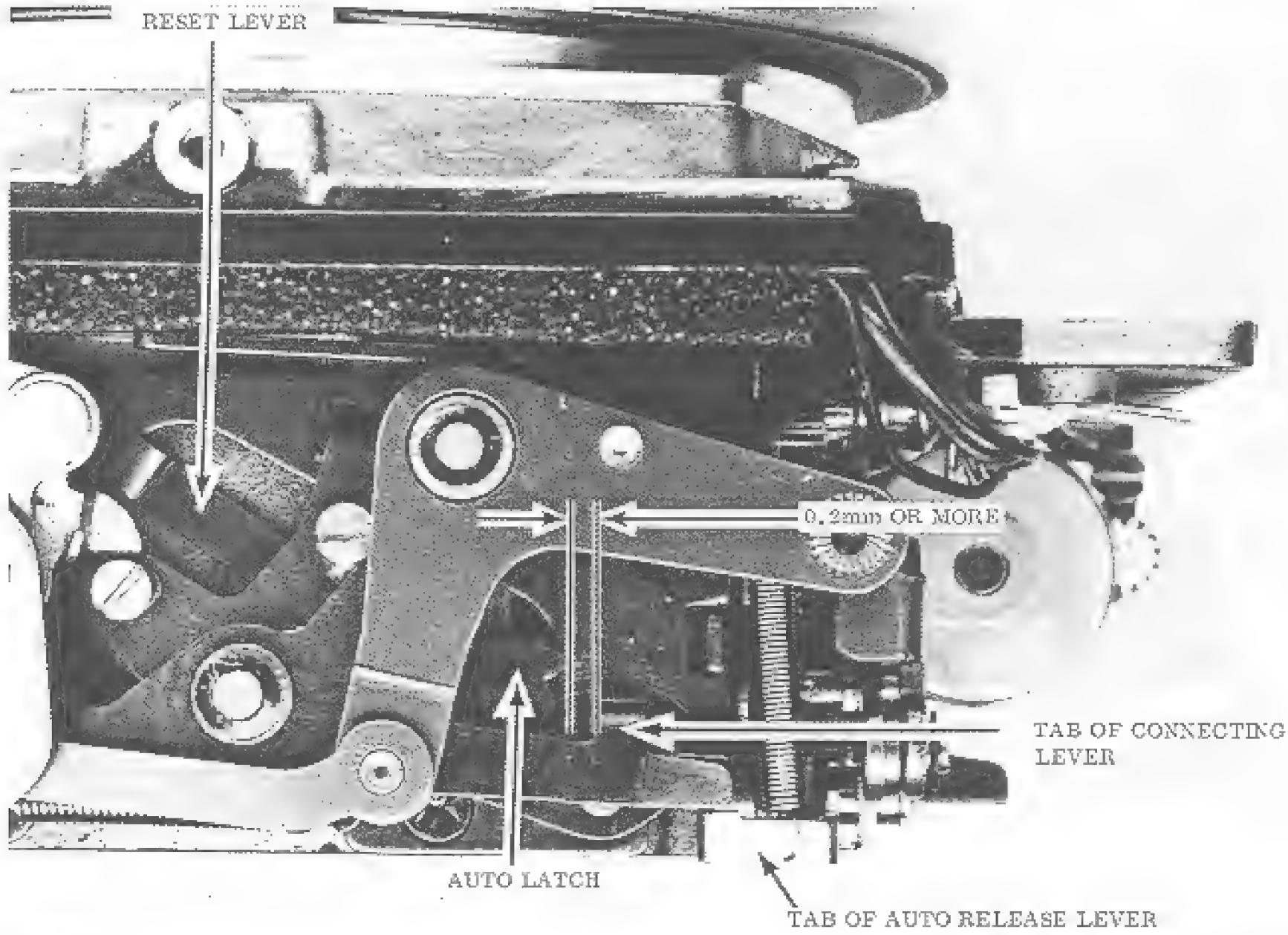








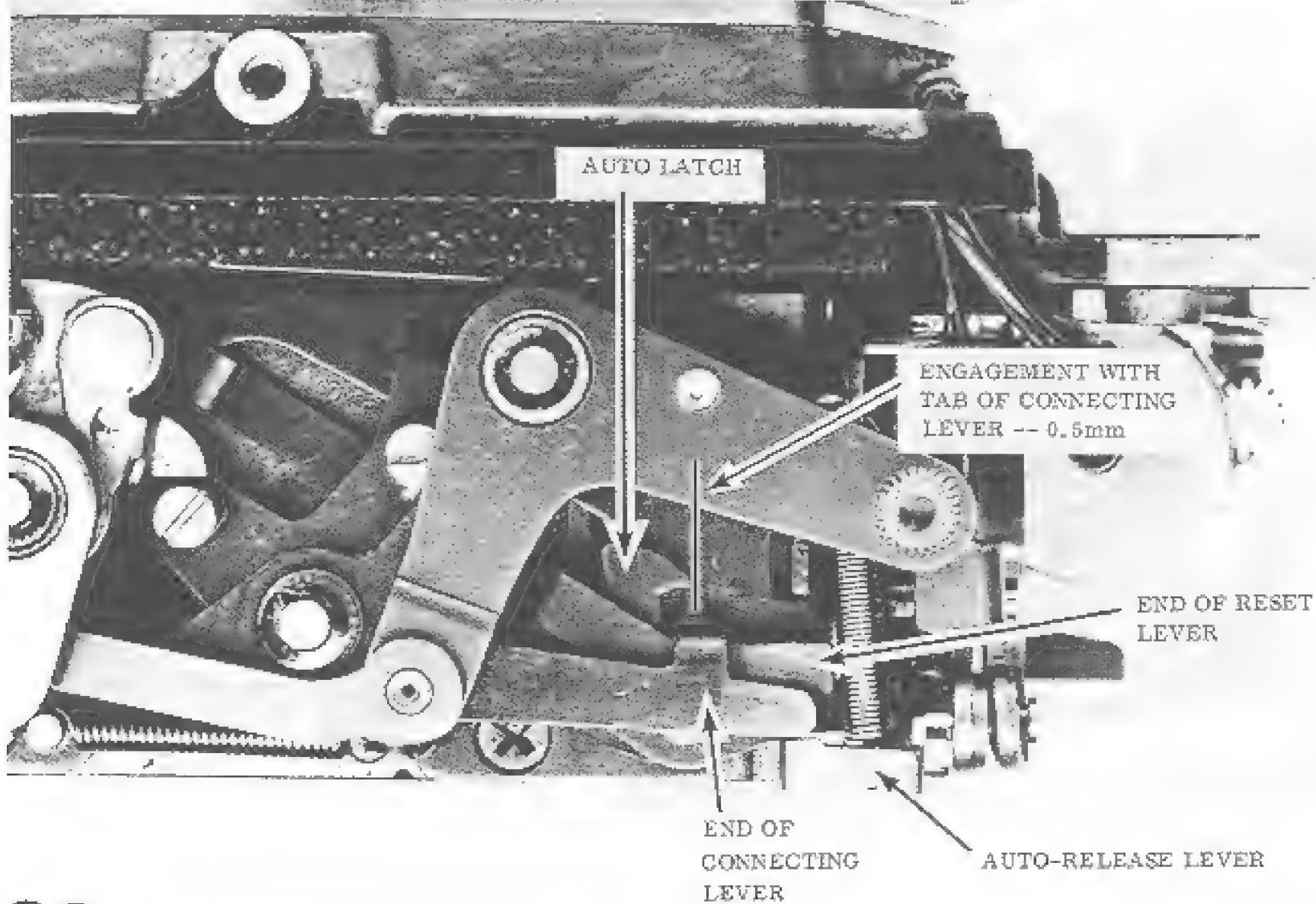
78

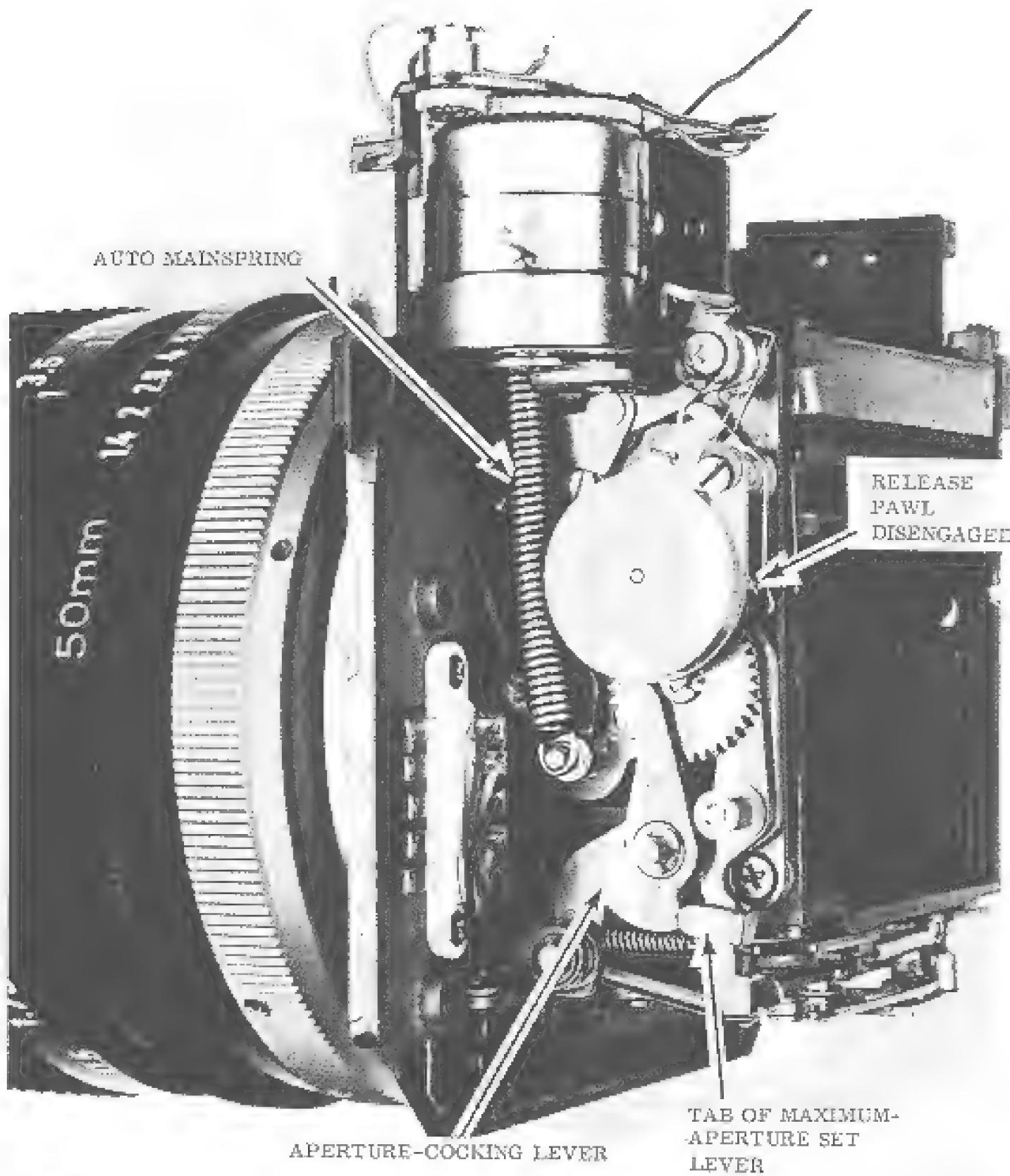


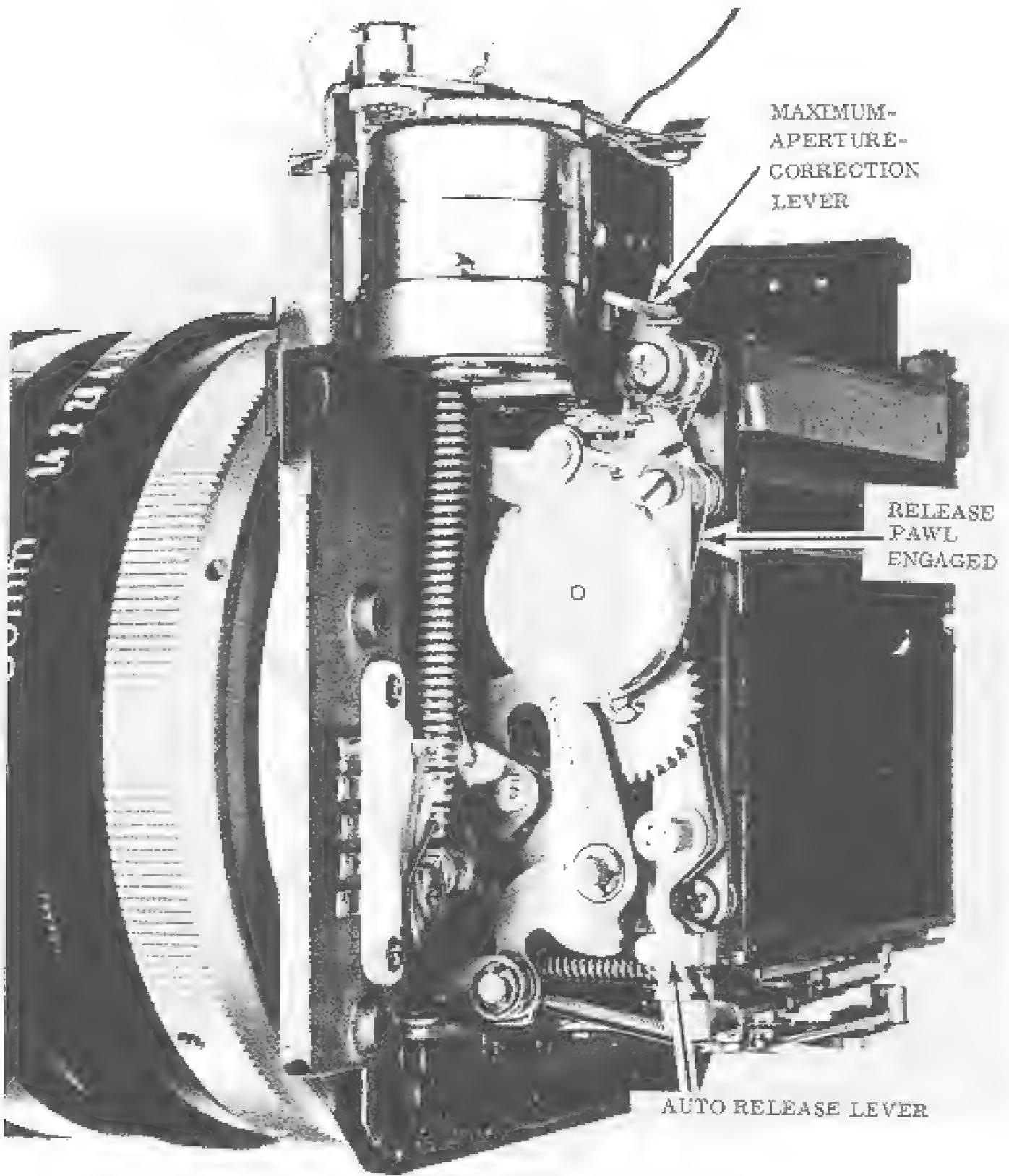
79

DIAPHRAGM-SETTING RING AT MANUAL SETTING

■ ADJUST AUTO-LATCH ENGAGEMENT WITH E-M CHANGE PIN (PART #19-0807) --
■ AVAILABLE WITH SHOULDER LENGTHS OF 3.3mm, 3.5mm, 3.7mm, and 3.9mm ➤

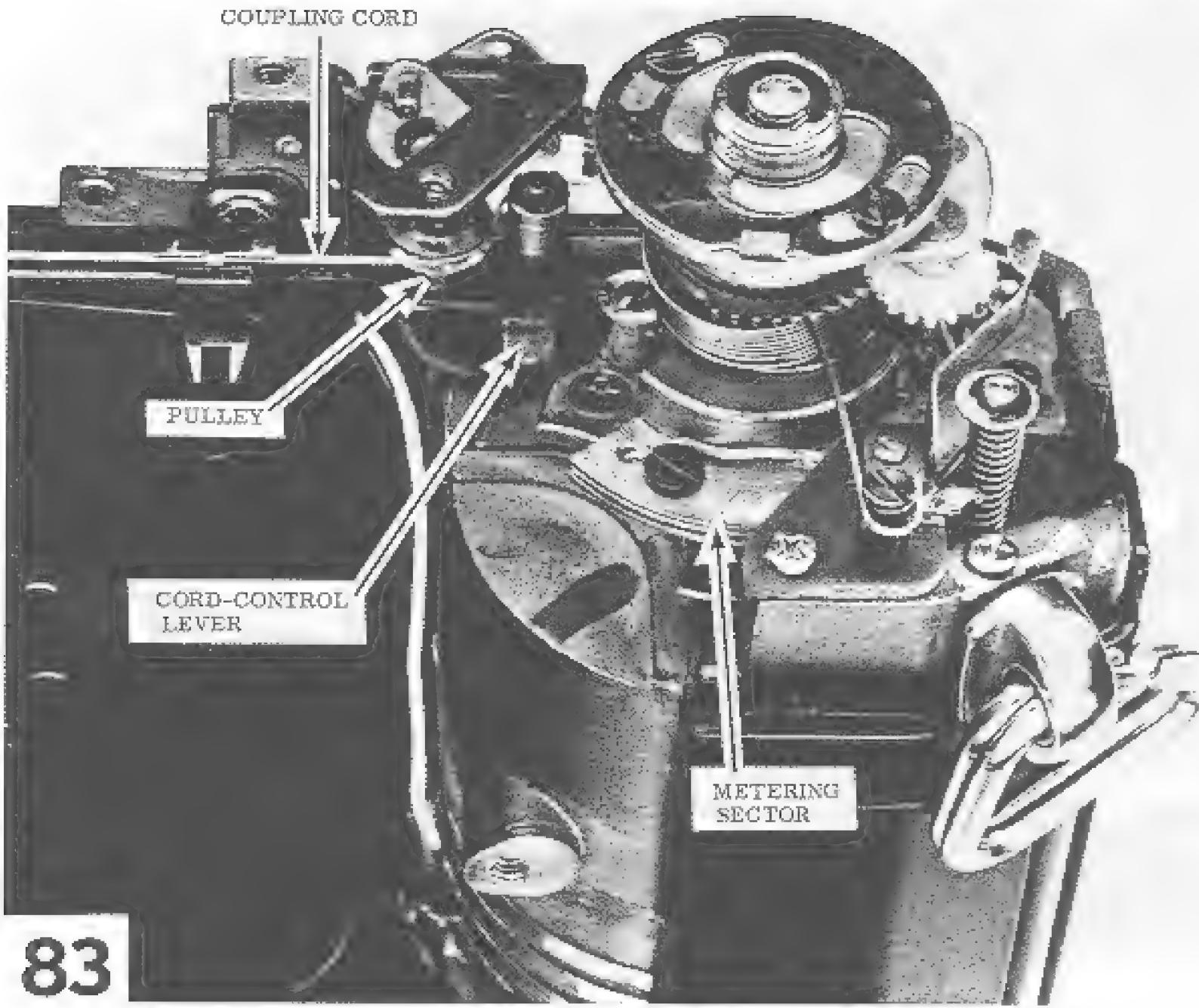


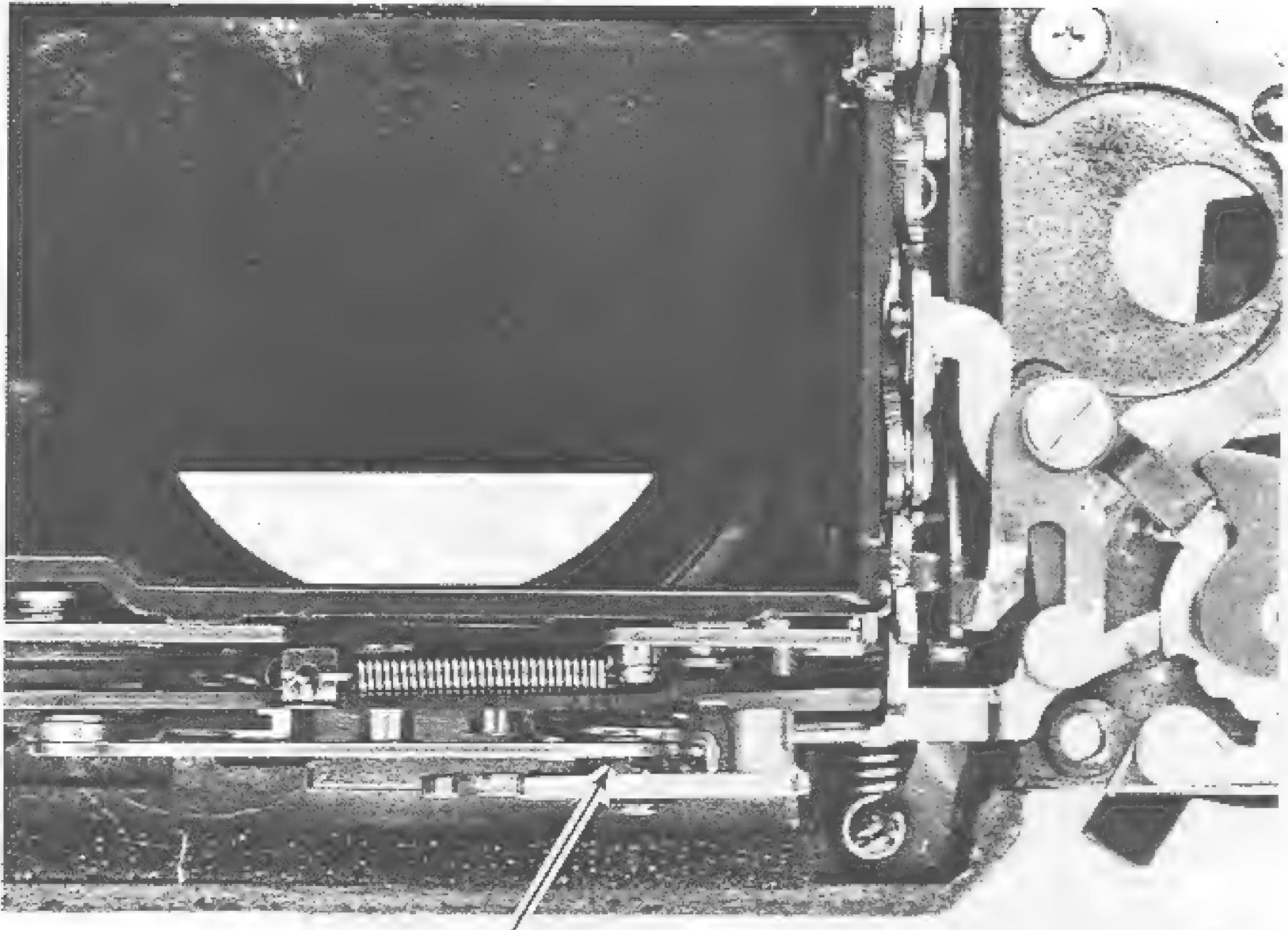




82

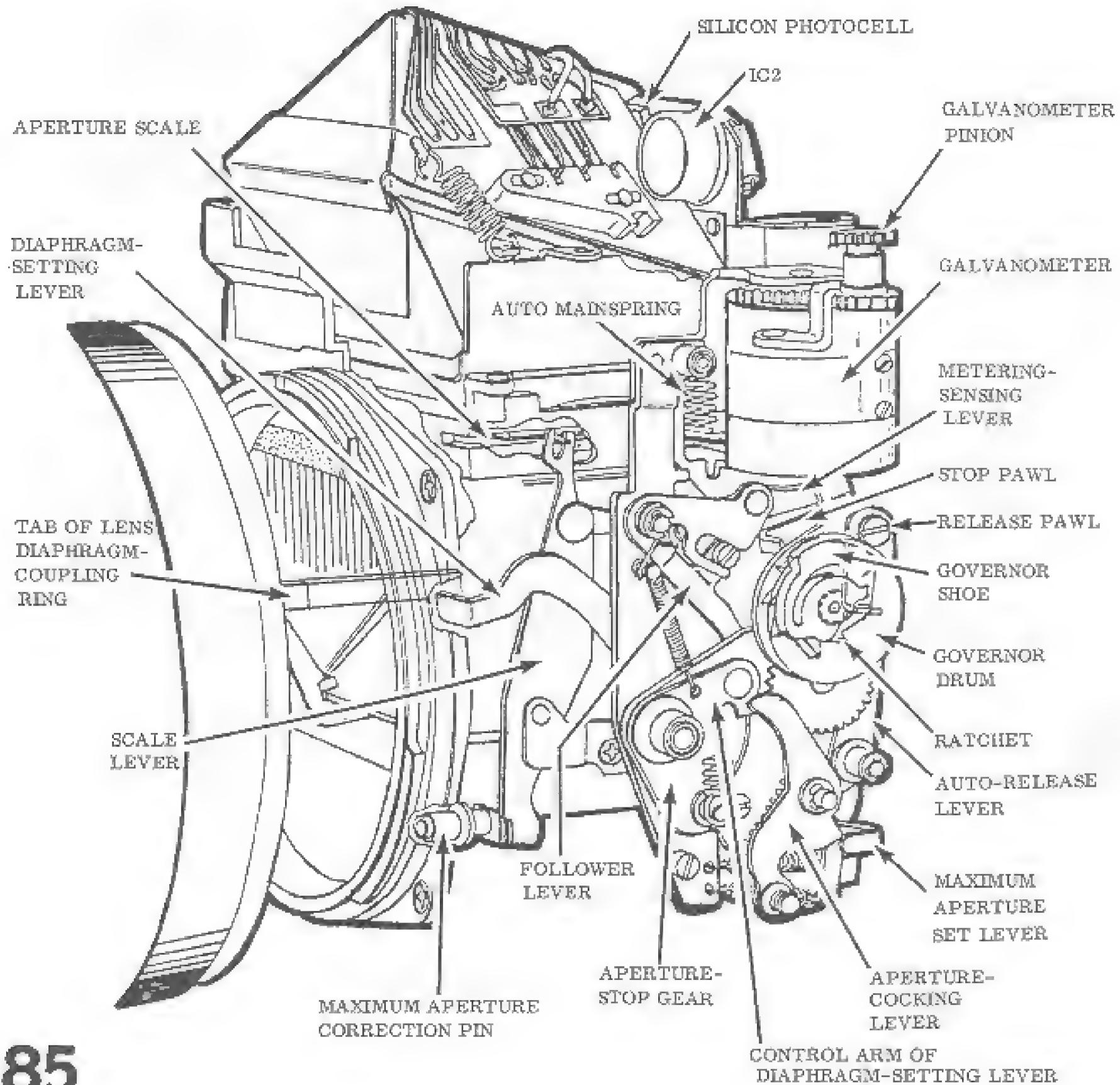
AUTO DIAPHRAGM-CONTROL UNIT TENSIONED

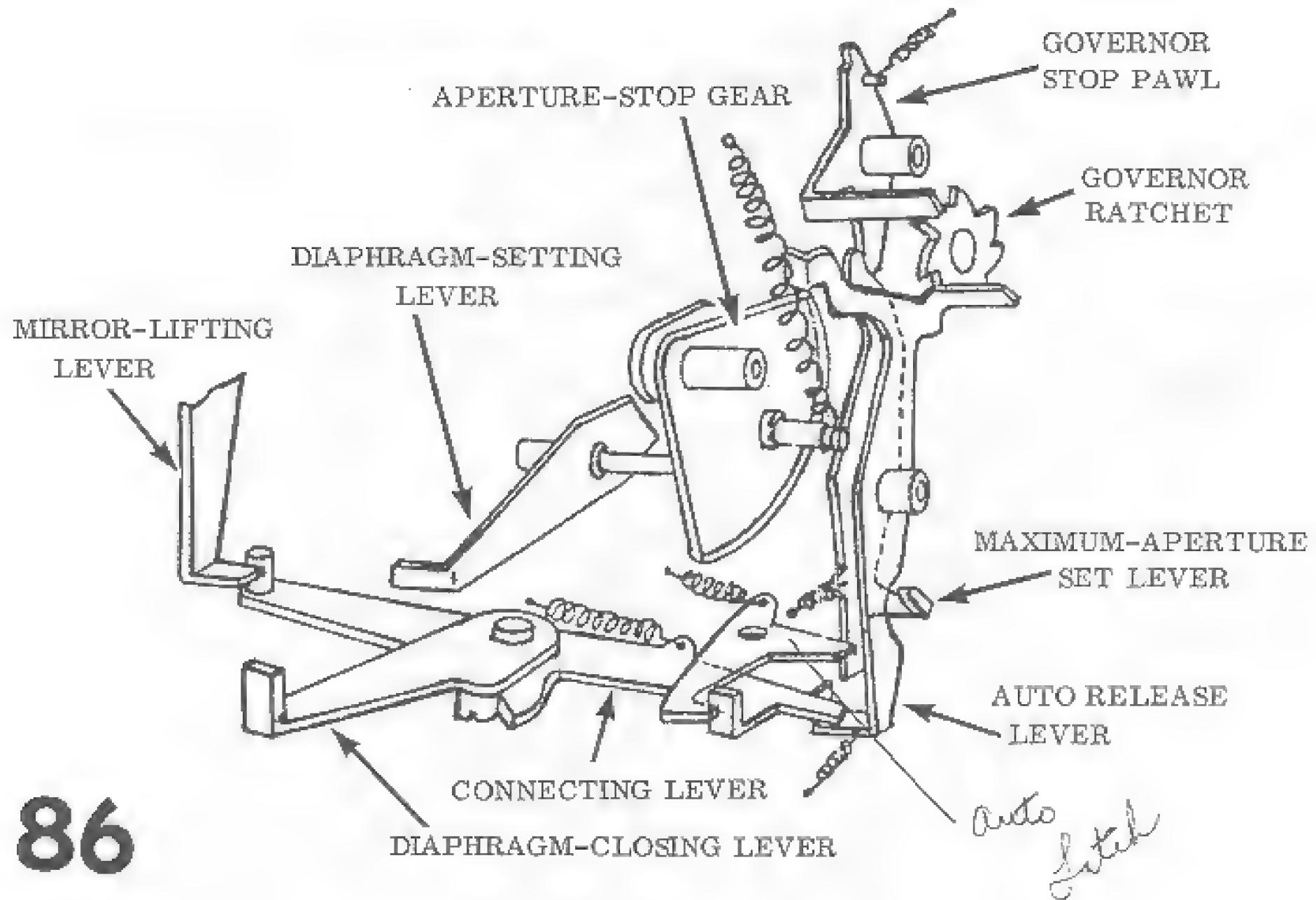


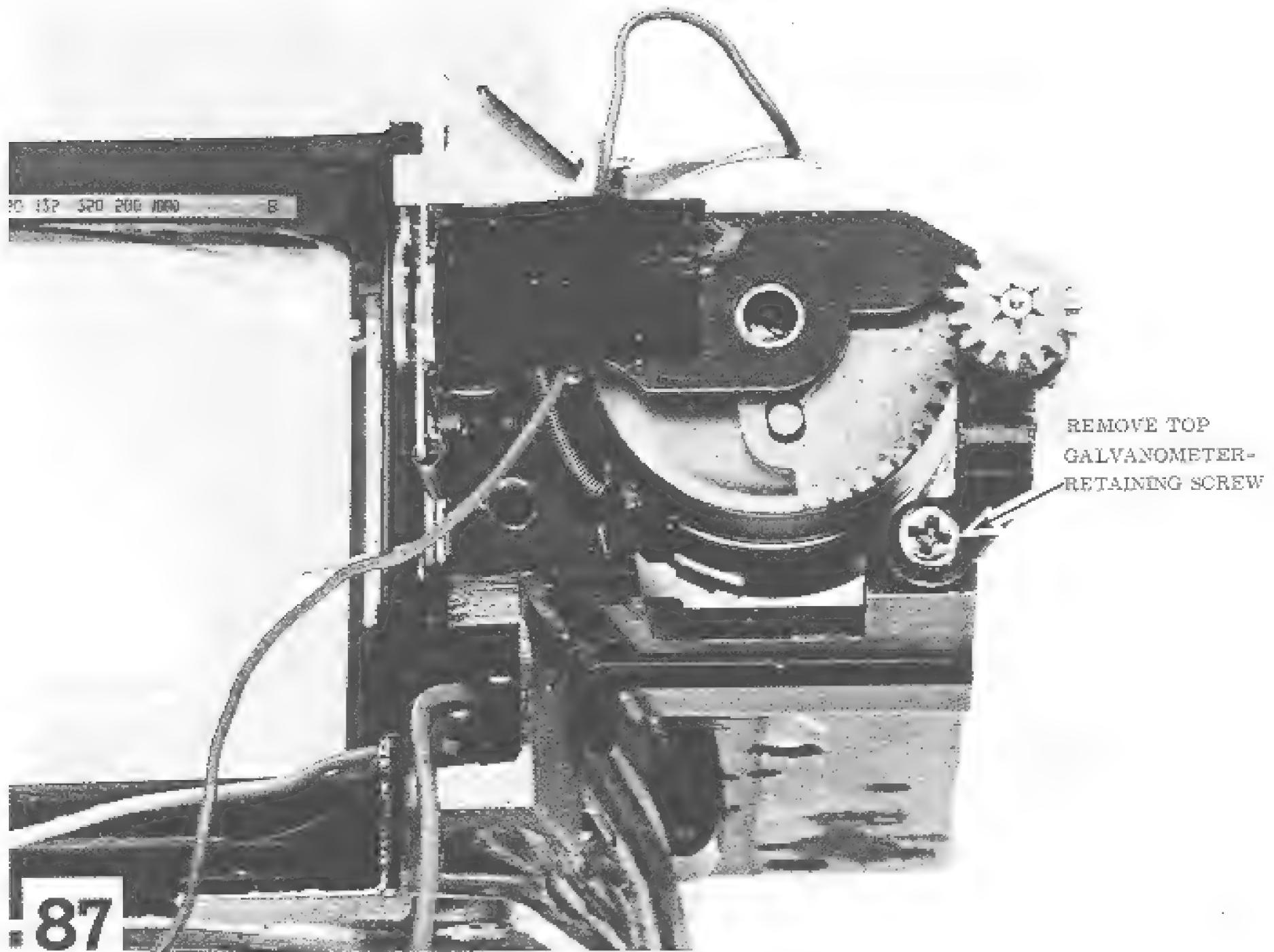


84

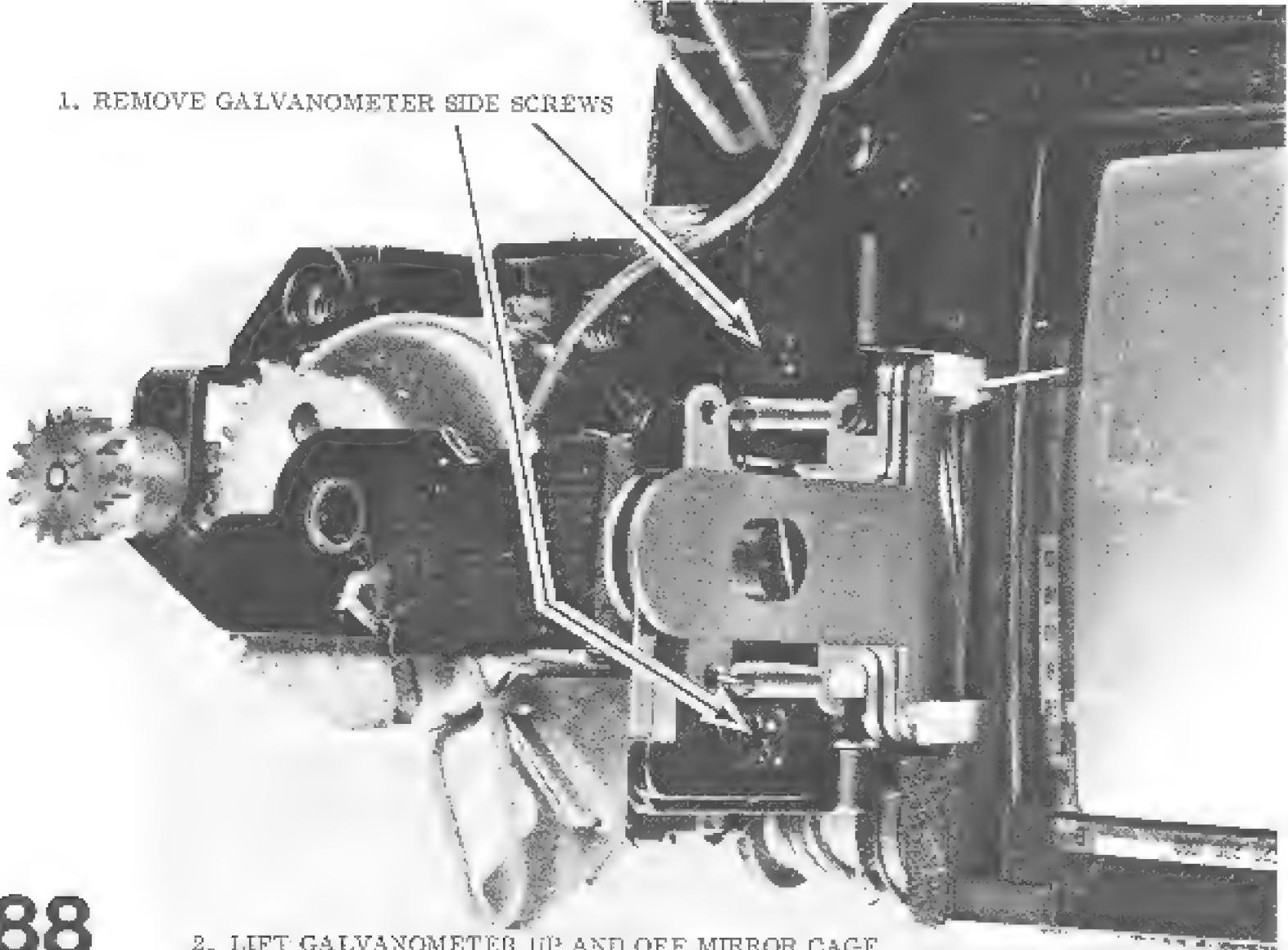
ECCENTRIC BETWEEN MIRROR-COCKING LEVER AND AUTO LINK -- ADJUST UNTIL THE RELEASE PAWL AND THE MIRROR-RELEASE LEVER ENGAGE SIMULTANEOUSLY





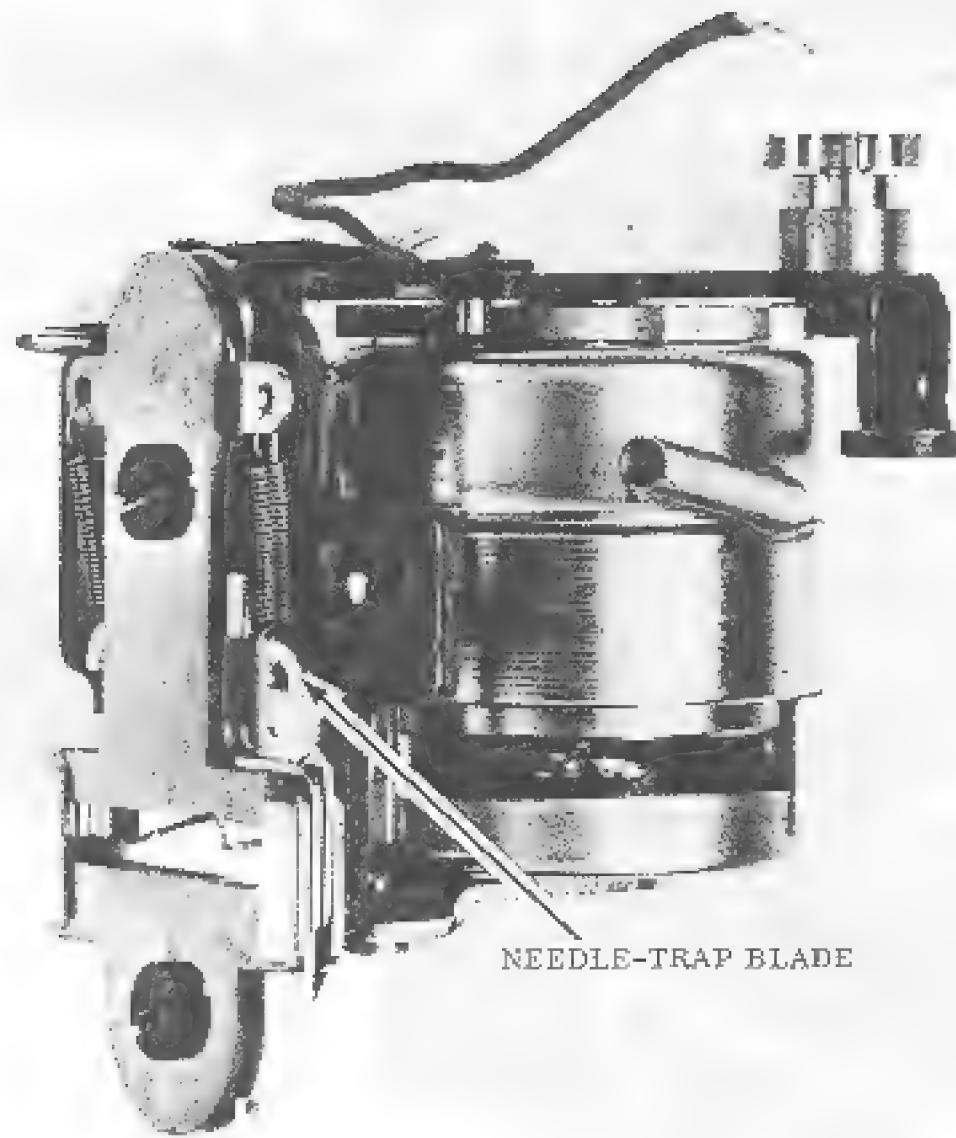


1. REMOVE GALVANOMETER SIDE SCREWS



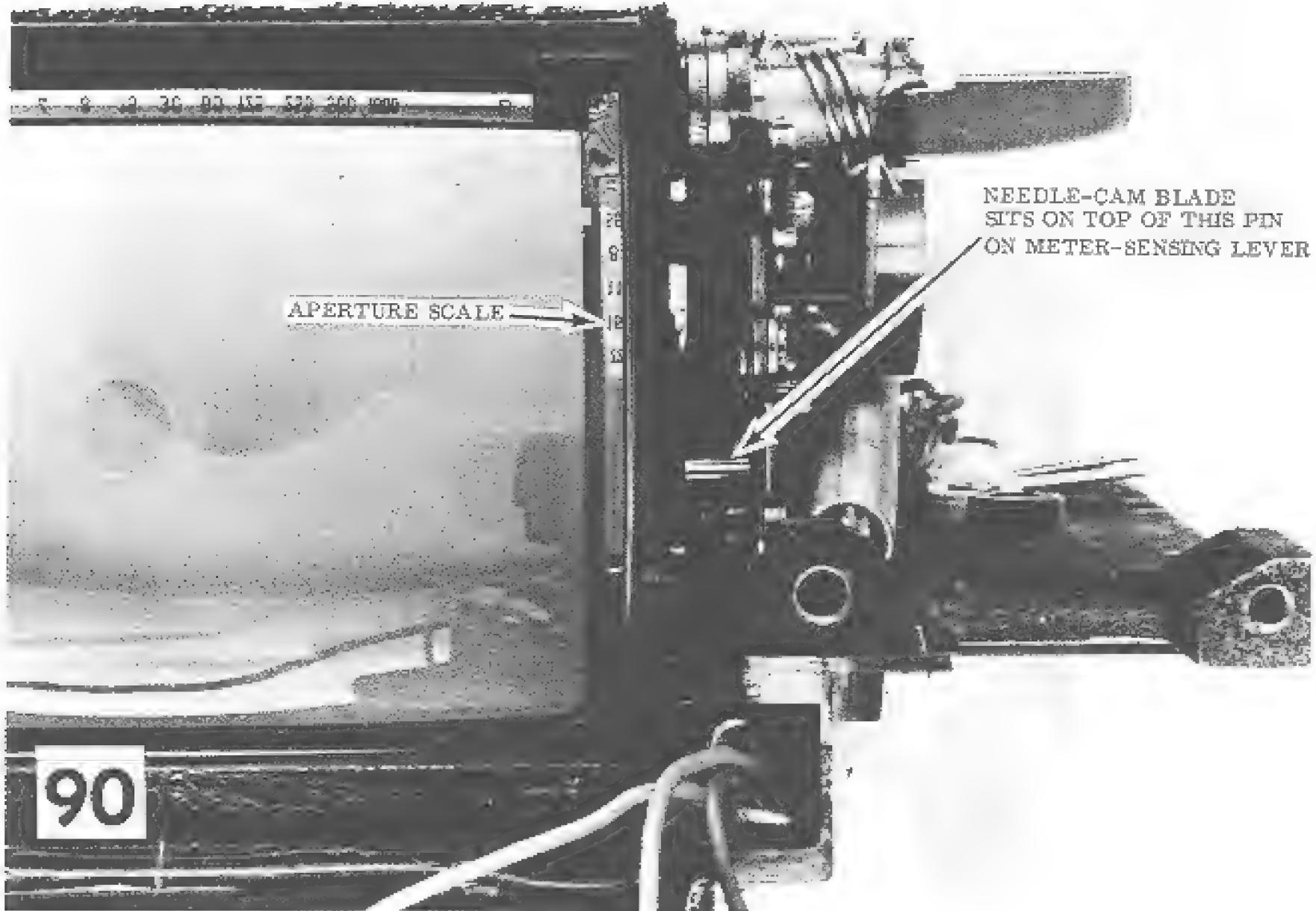
88

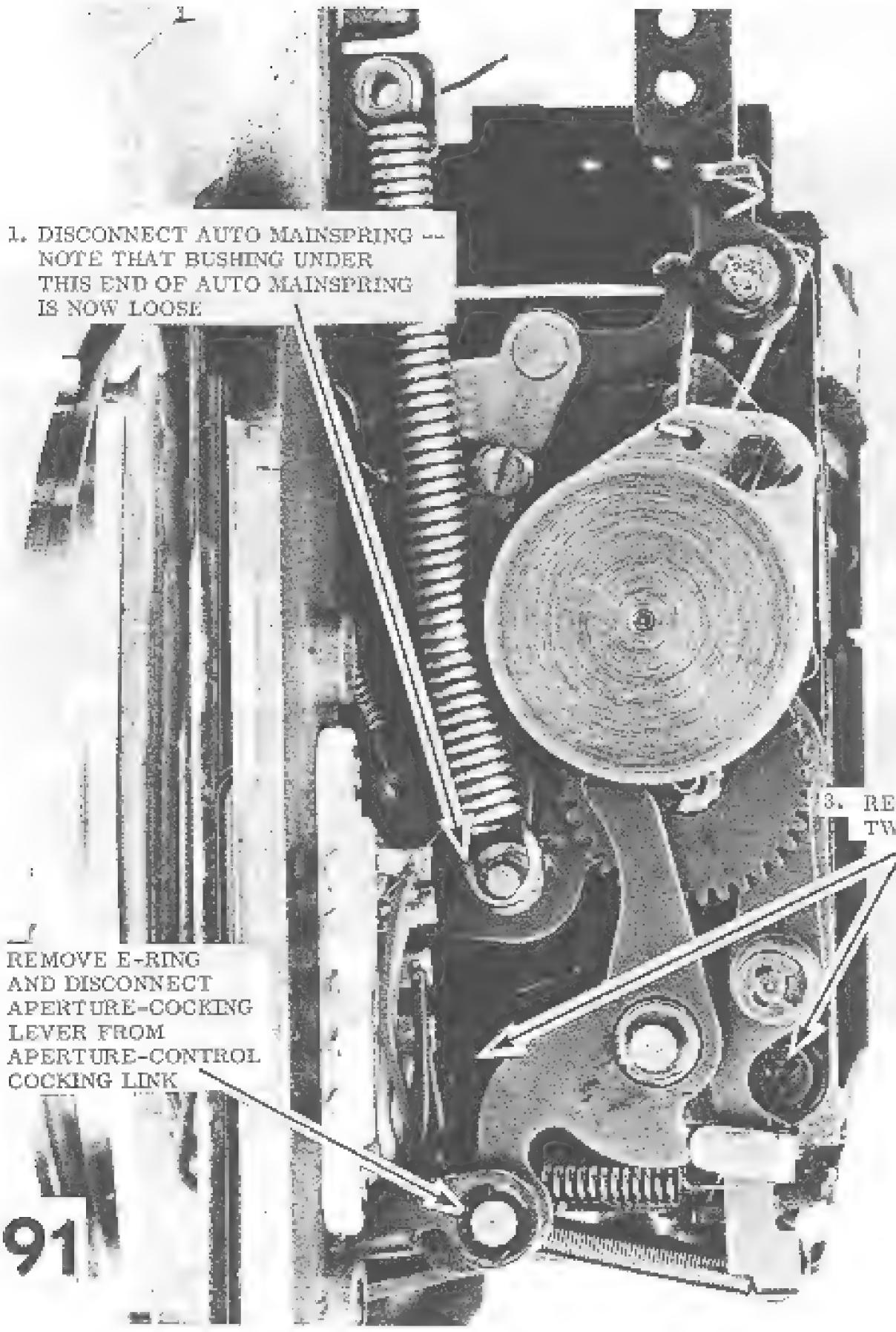
2. LIFT GALVANOMETER UP AND OFF MIRROR CAGE



89

NEEDLE-CAM BLADE



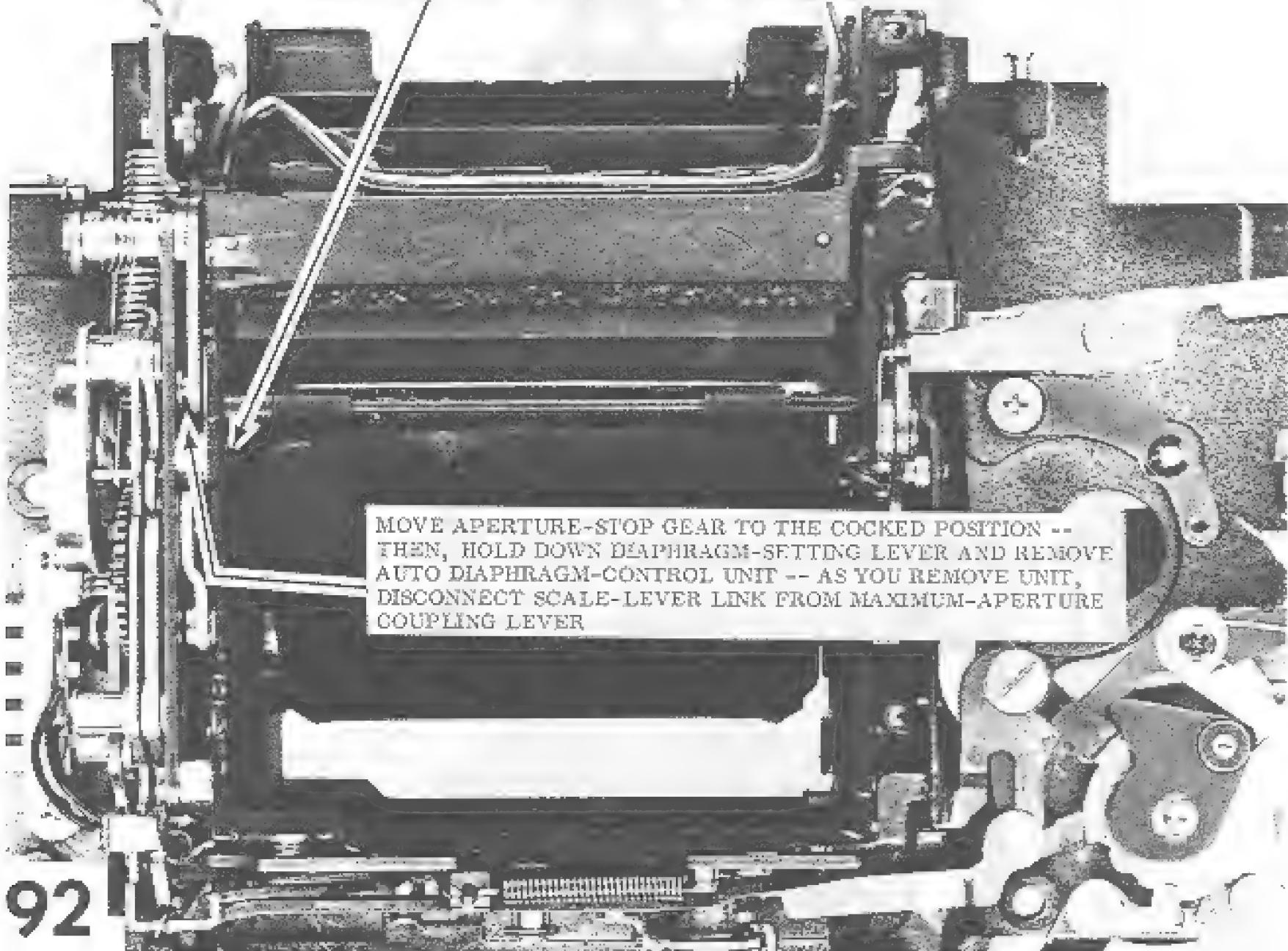


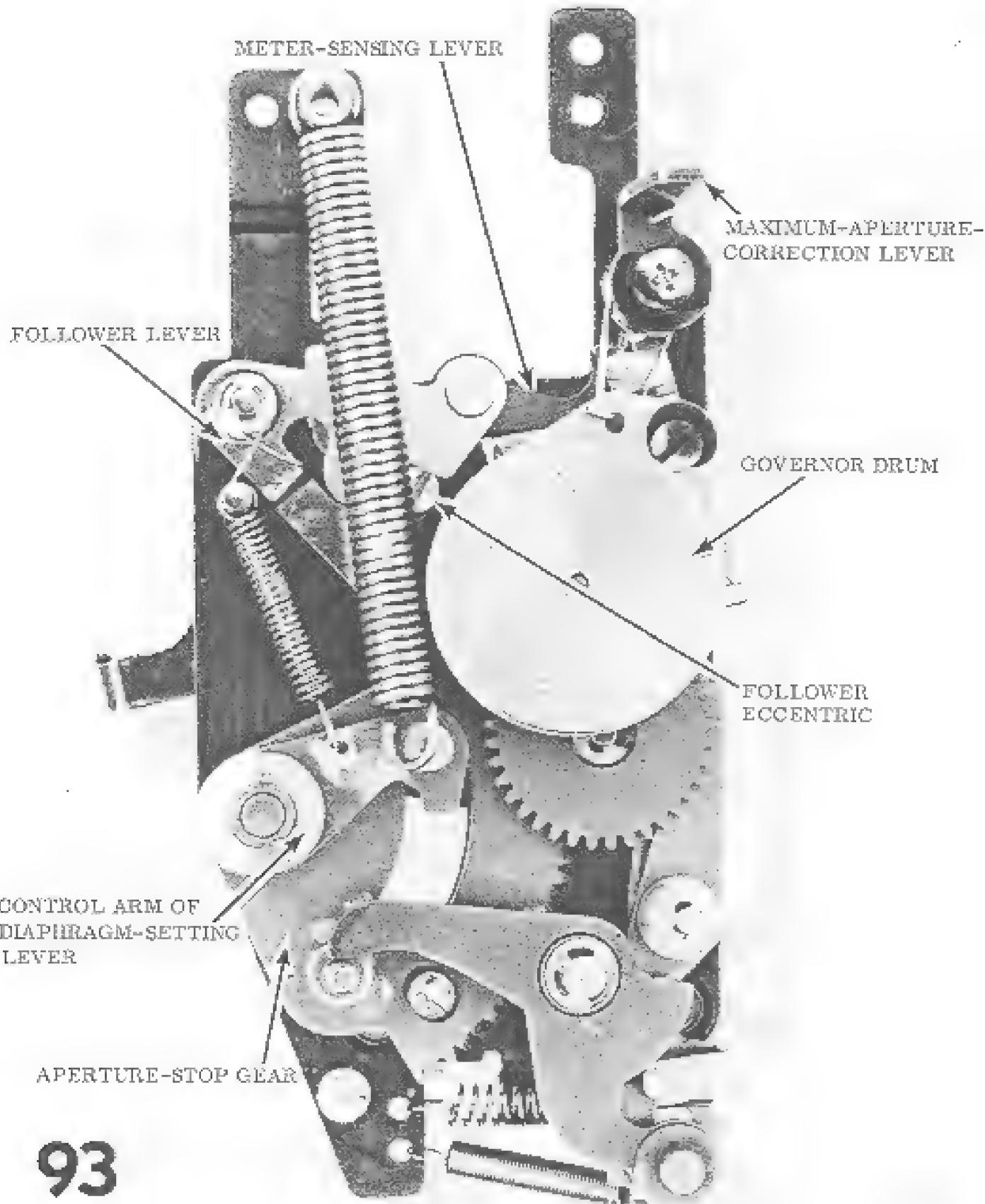
1. DISCONNECT AUTO MAINSPRING --
NOTE THAT BUSHING UNDER
THIS END OF AUTO MAINSPRING
IS NOW LOOSE

2. REMOVE E-RING
AND DISCONNECT
APERTURE-COCKING
LEVER FROM
APERTURE-CONTROL
COCKING LINK

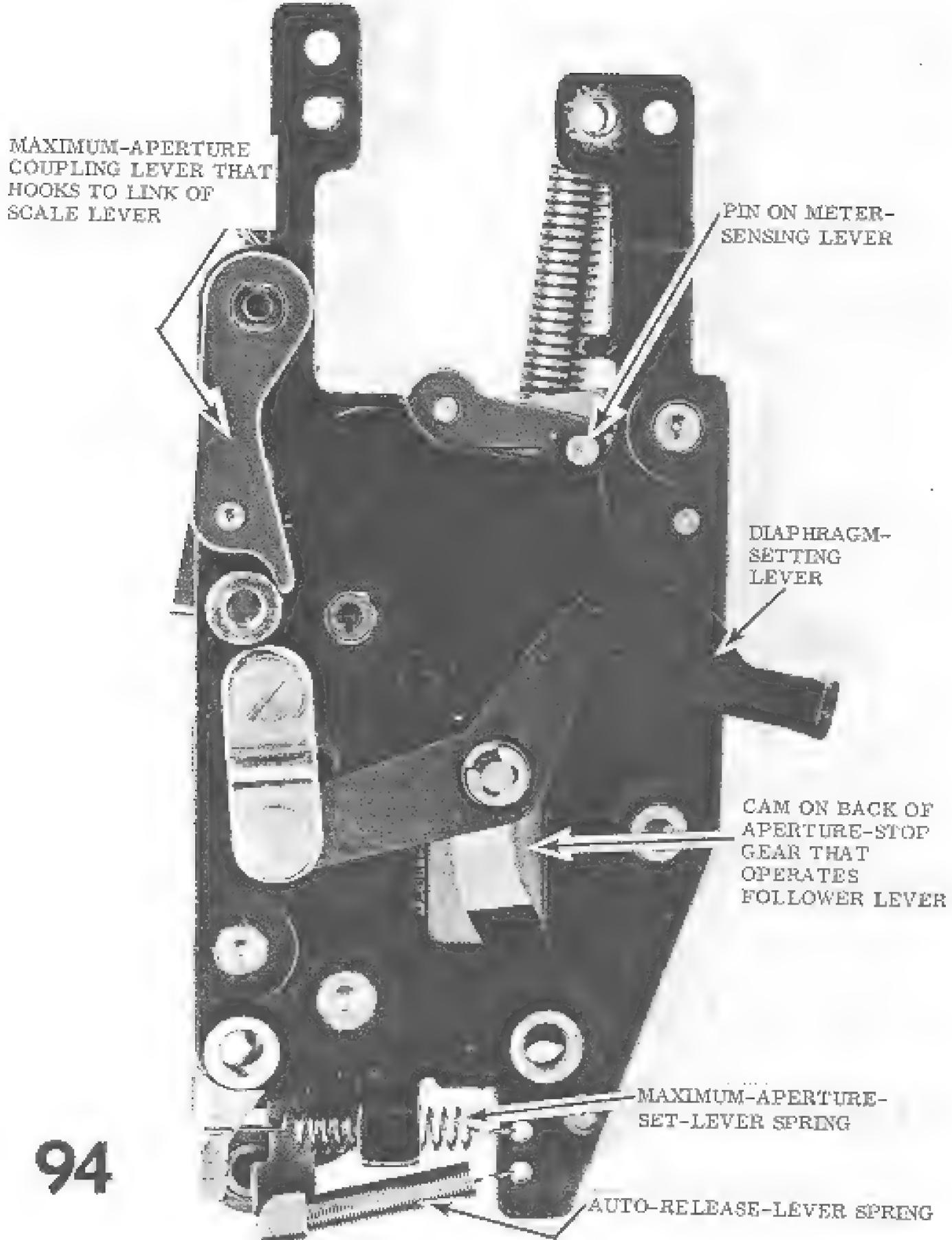
3. REMOVE
TWO SCREWS

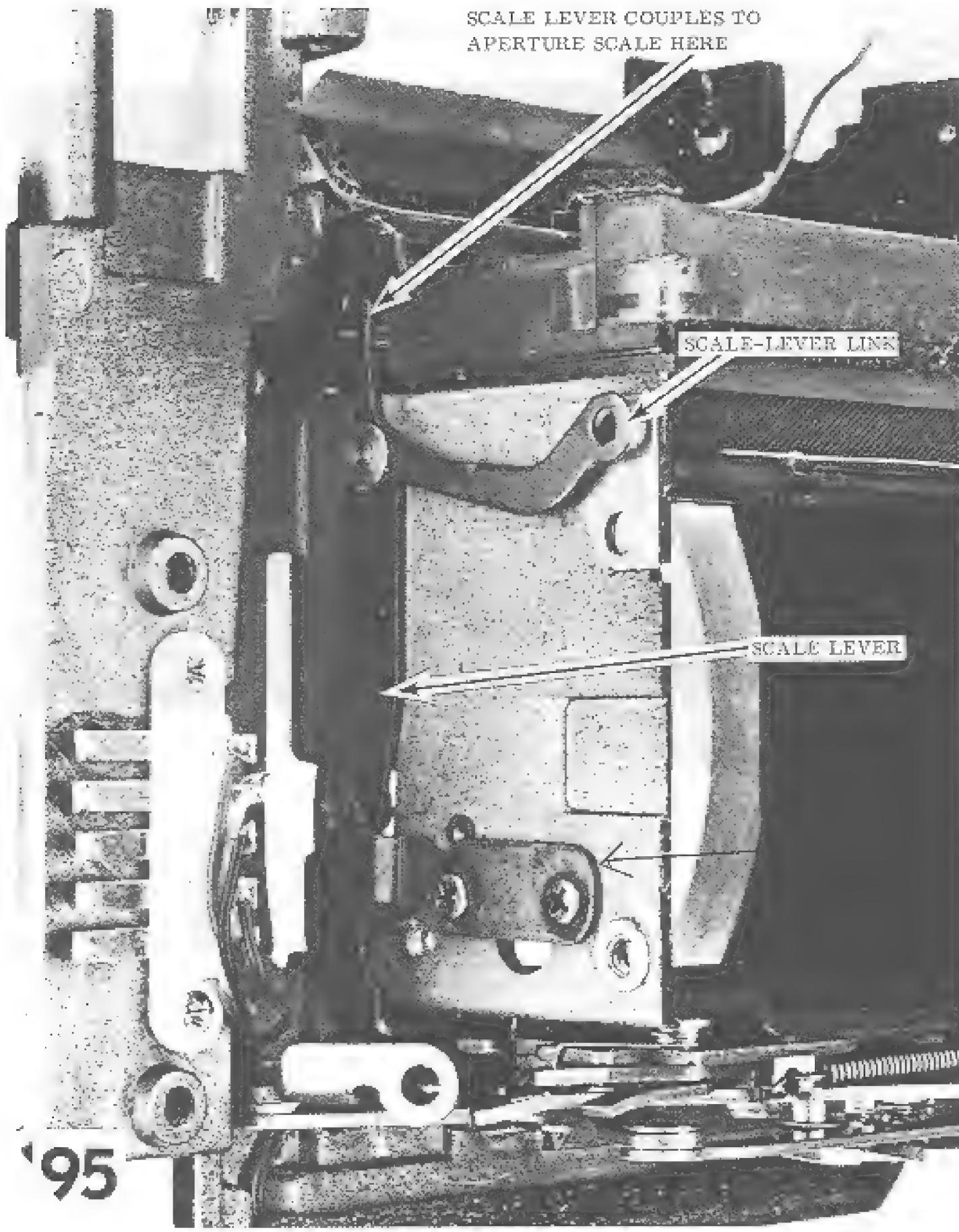
1. REMOVE THIRD SCREW HOLDING AUTO
DIAPHRAGM-CONTROL UNIT FROM INSIDE MIRROR CAGE





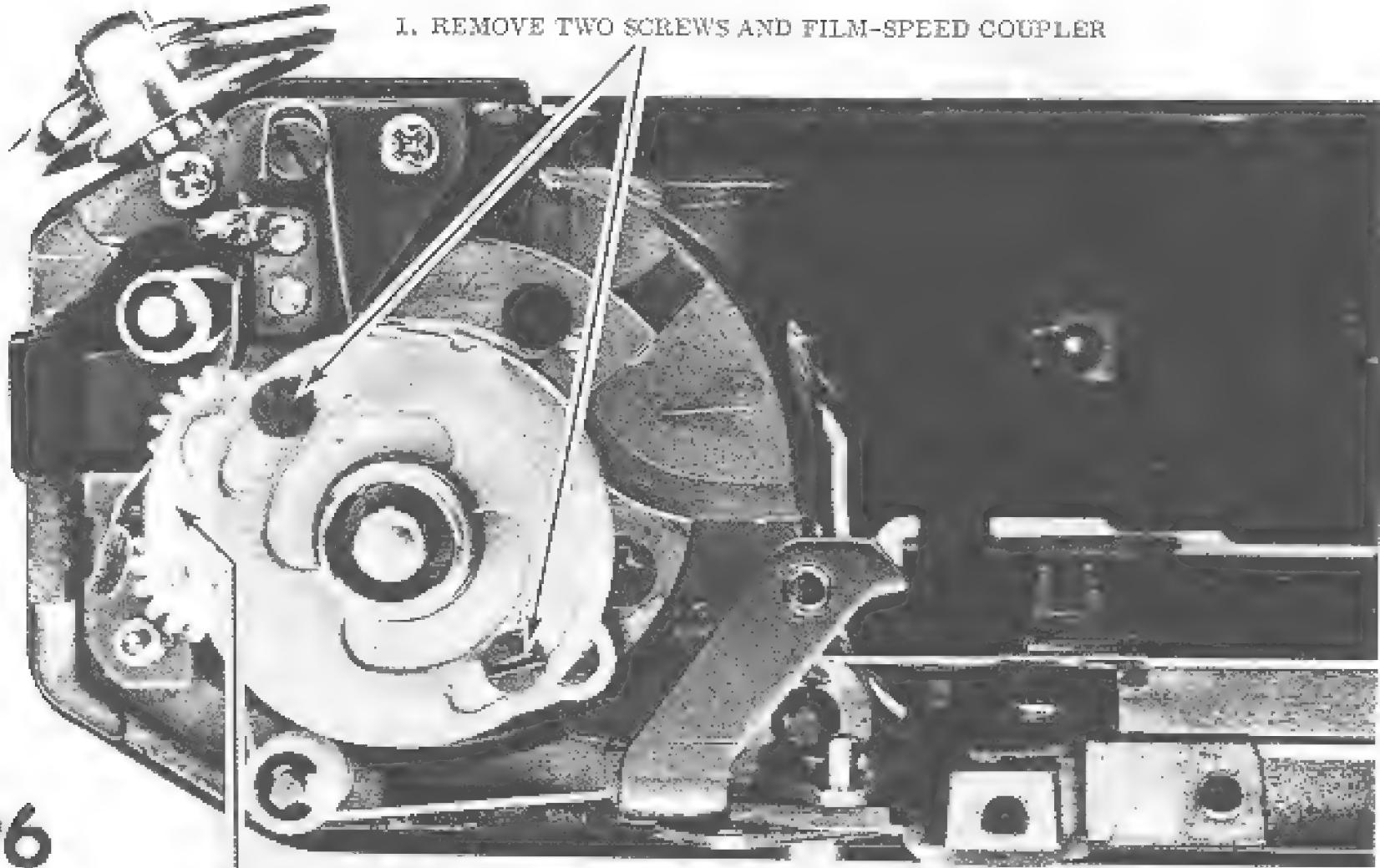
Close-up view of shutter assembly





'95

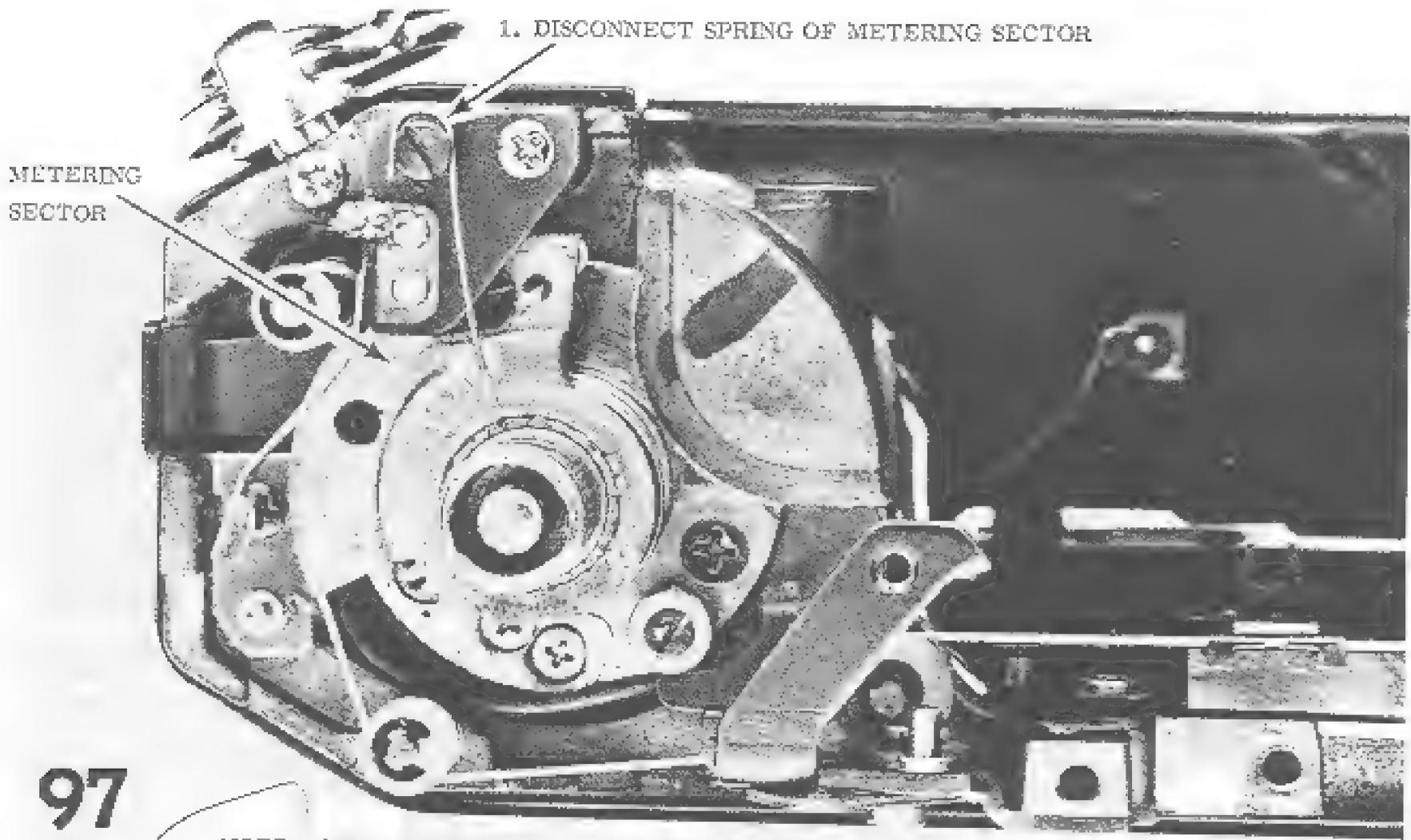
96



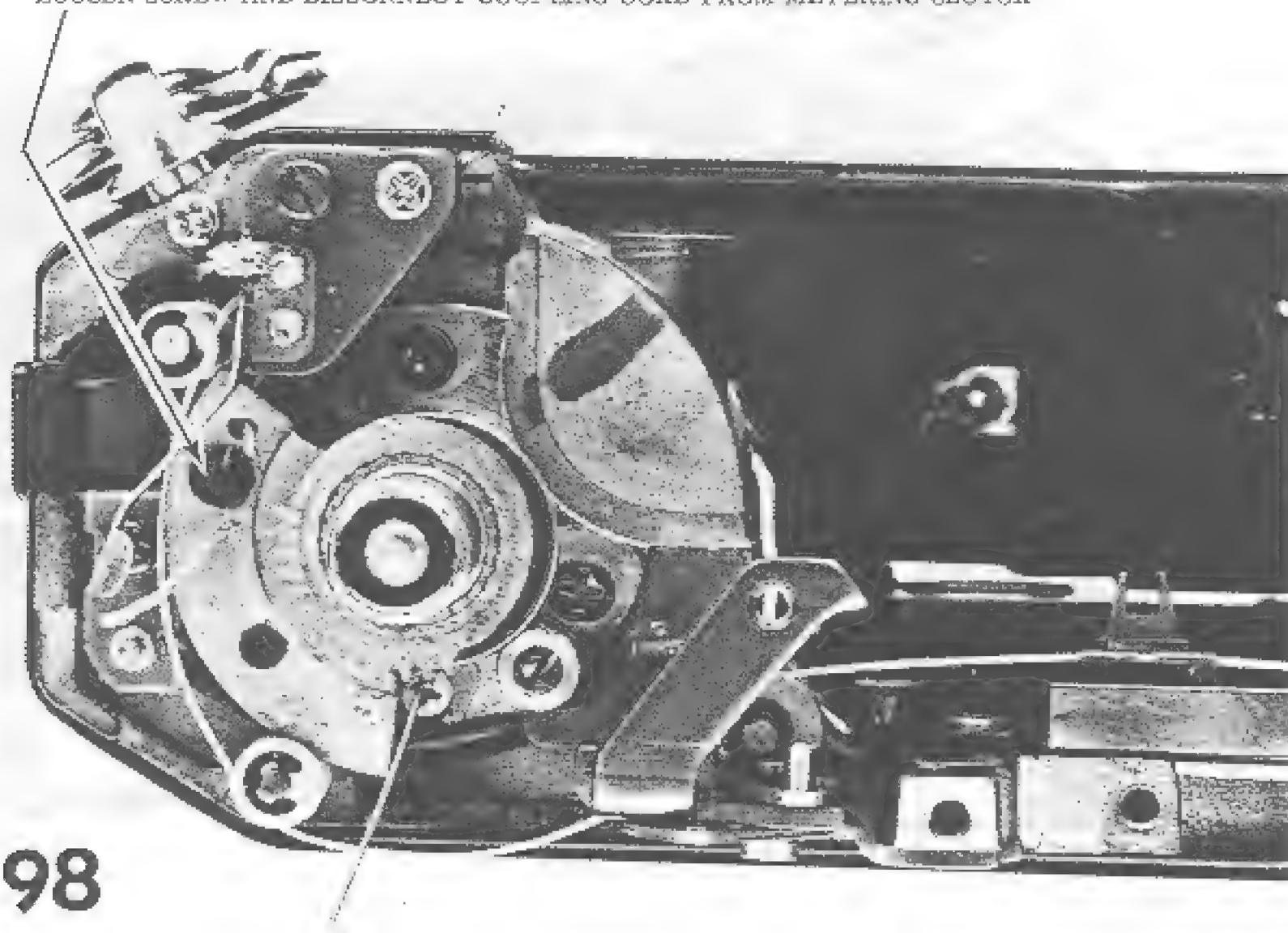
1. REMOVE TWO SCREWS AND FILM-SPEED COUPLER

2. LIFT OFF FILM-SPEED GEAR UNIT
(SPACER UNDERNEATH)

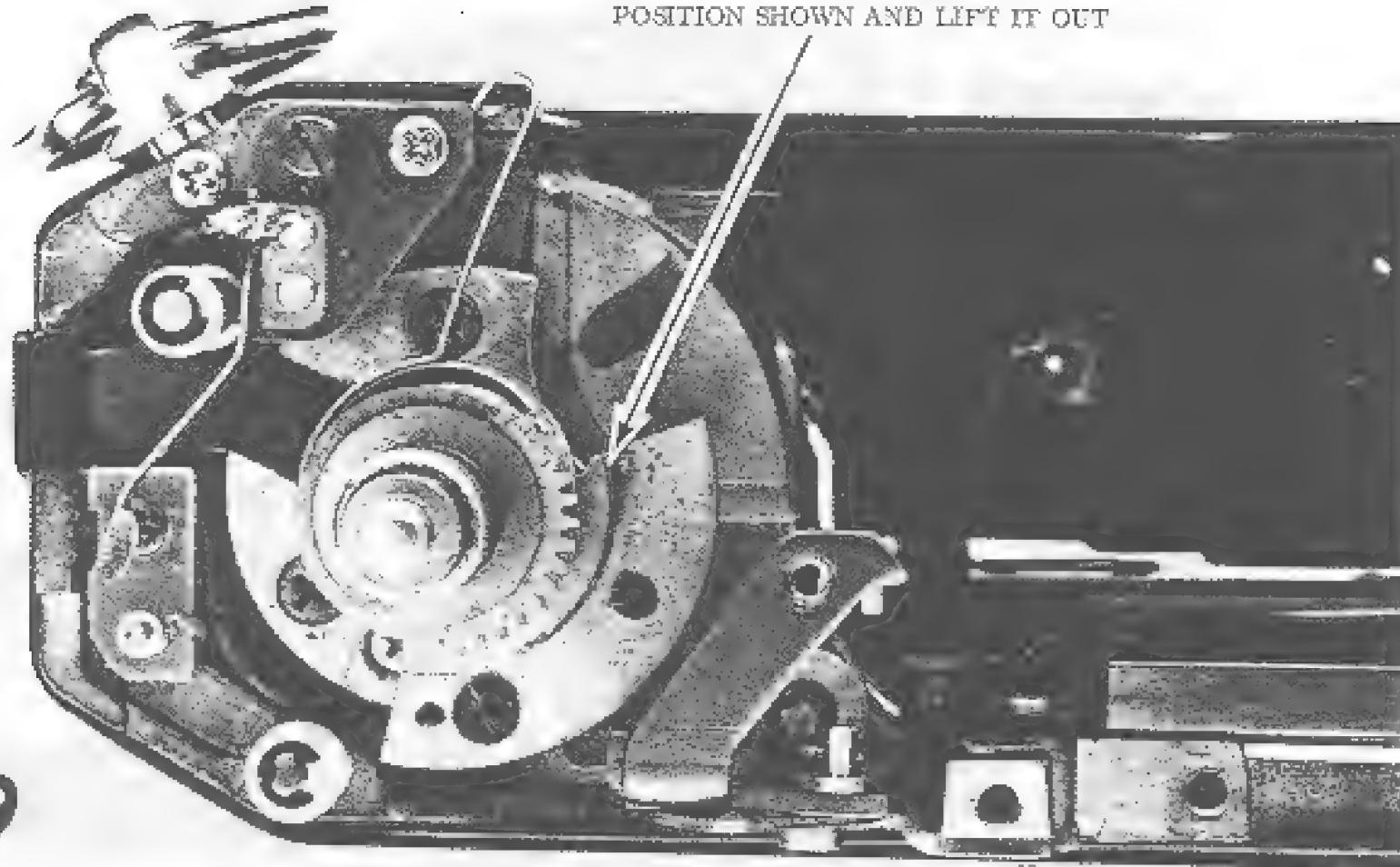
97

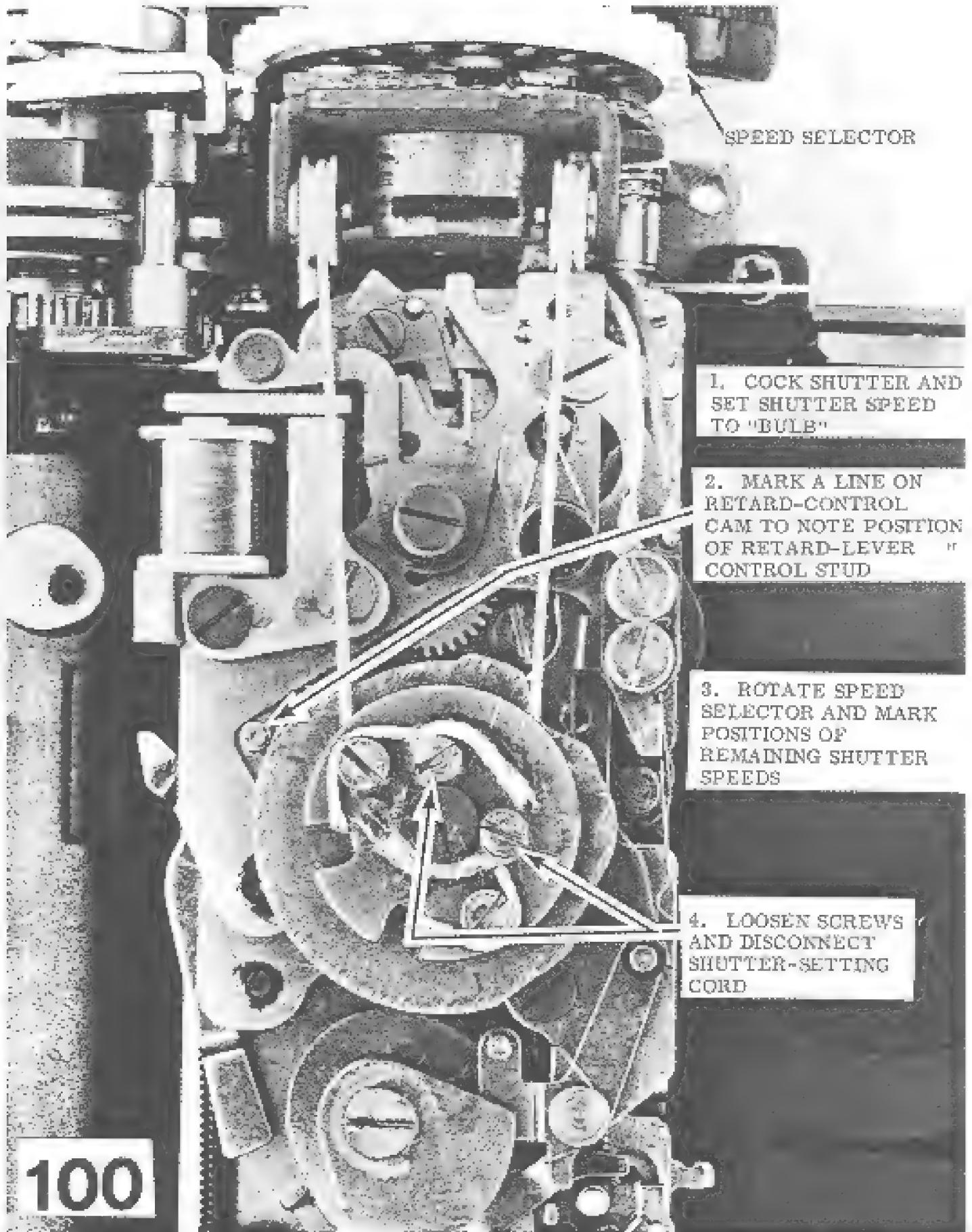


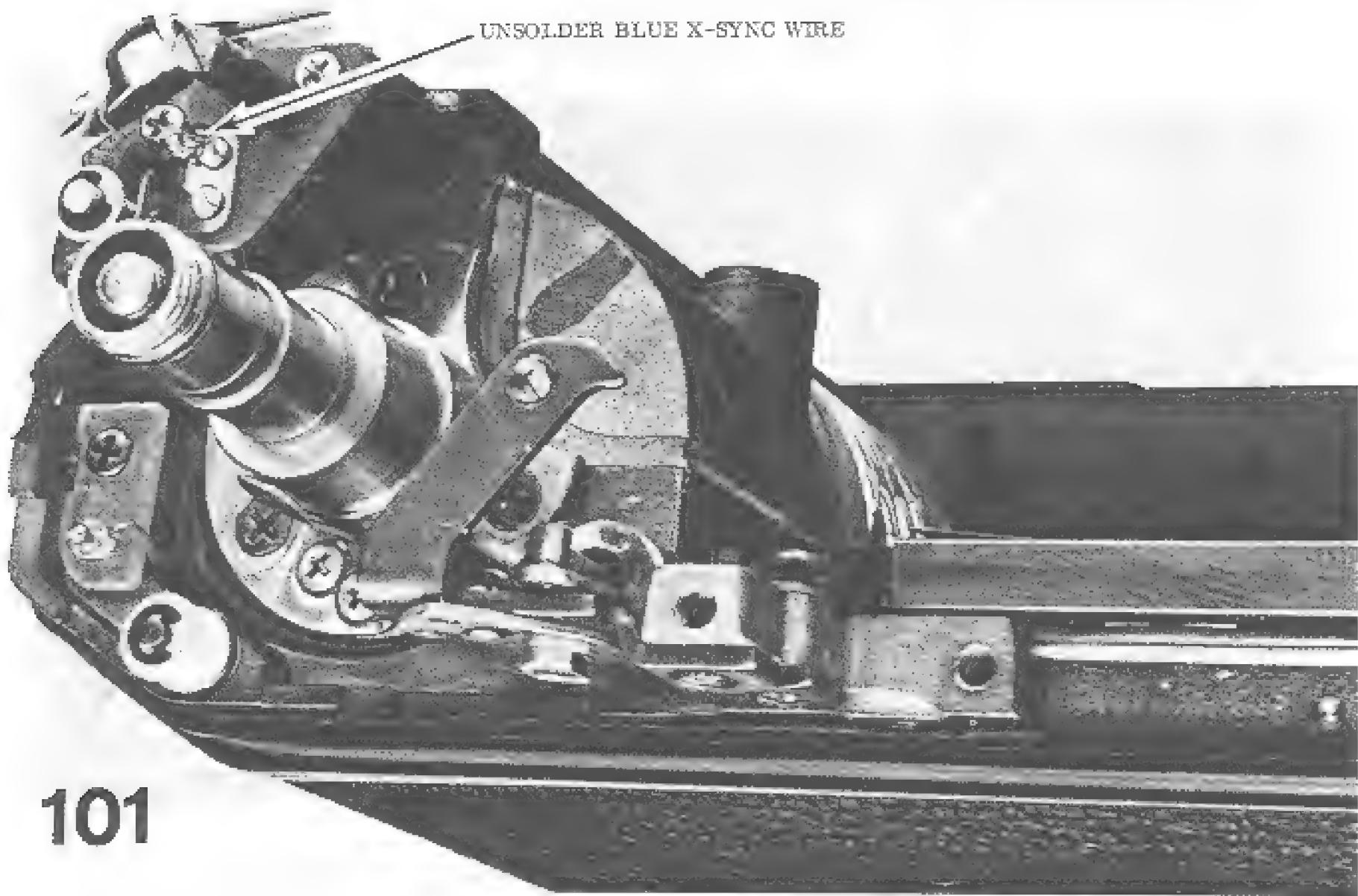
LOOSEN SCREW AND DISCONNECT COUPLING CORD FROM METERING SECTOR



TURN METERING SECTOR TO
POSITION SHOWN AND LIFT IT OUT



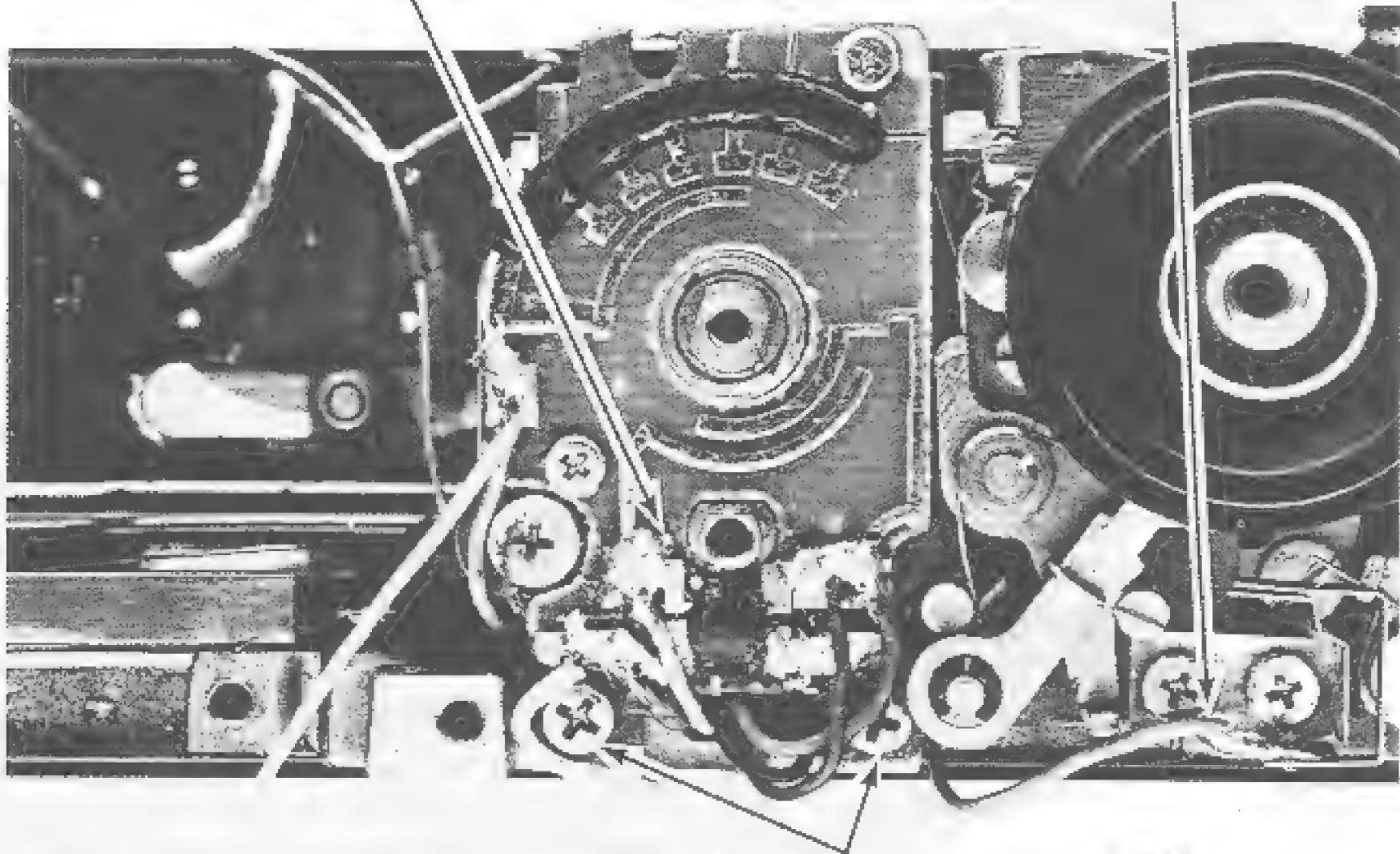




101

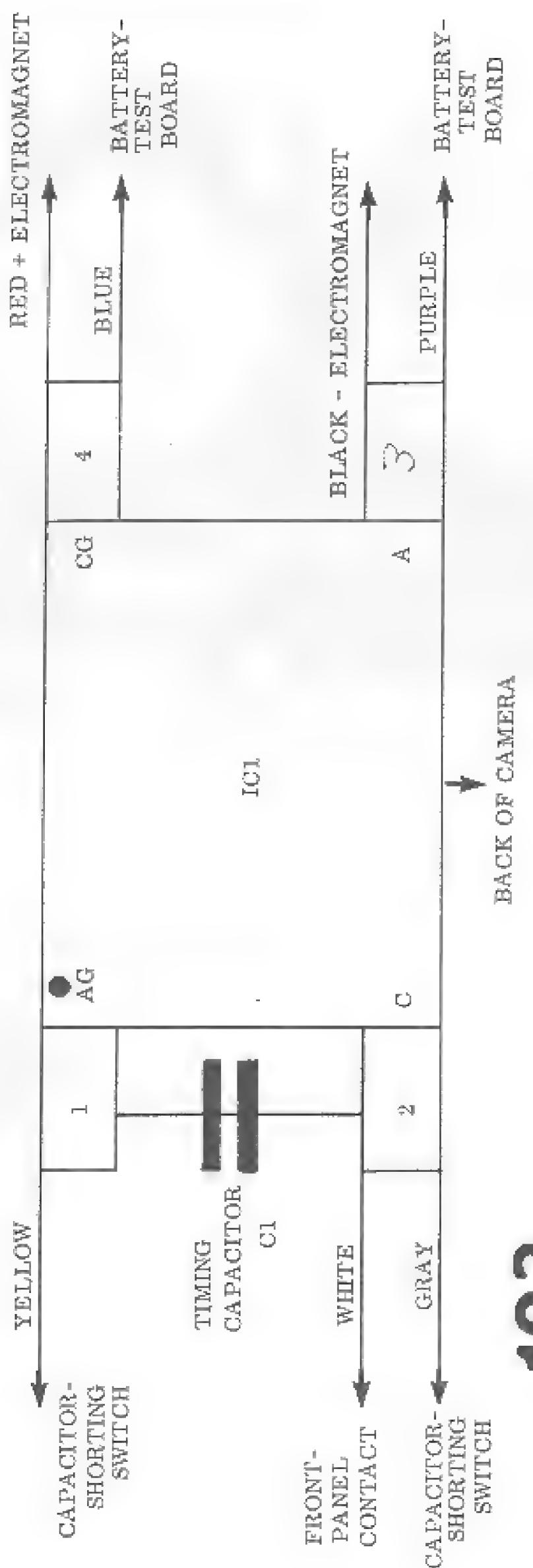
1. UNSOLDER WIRES FROM IC1 (SEE NEXT ILLUSTRATION)

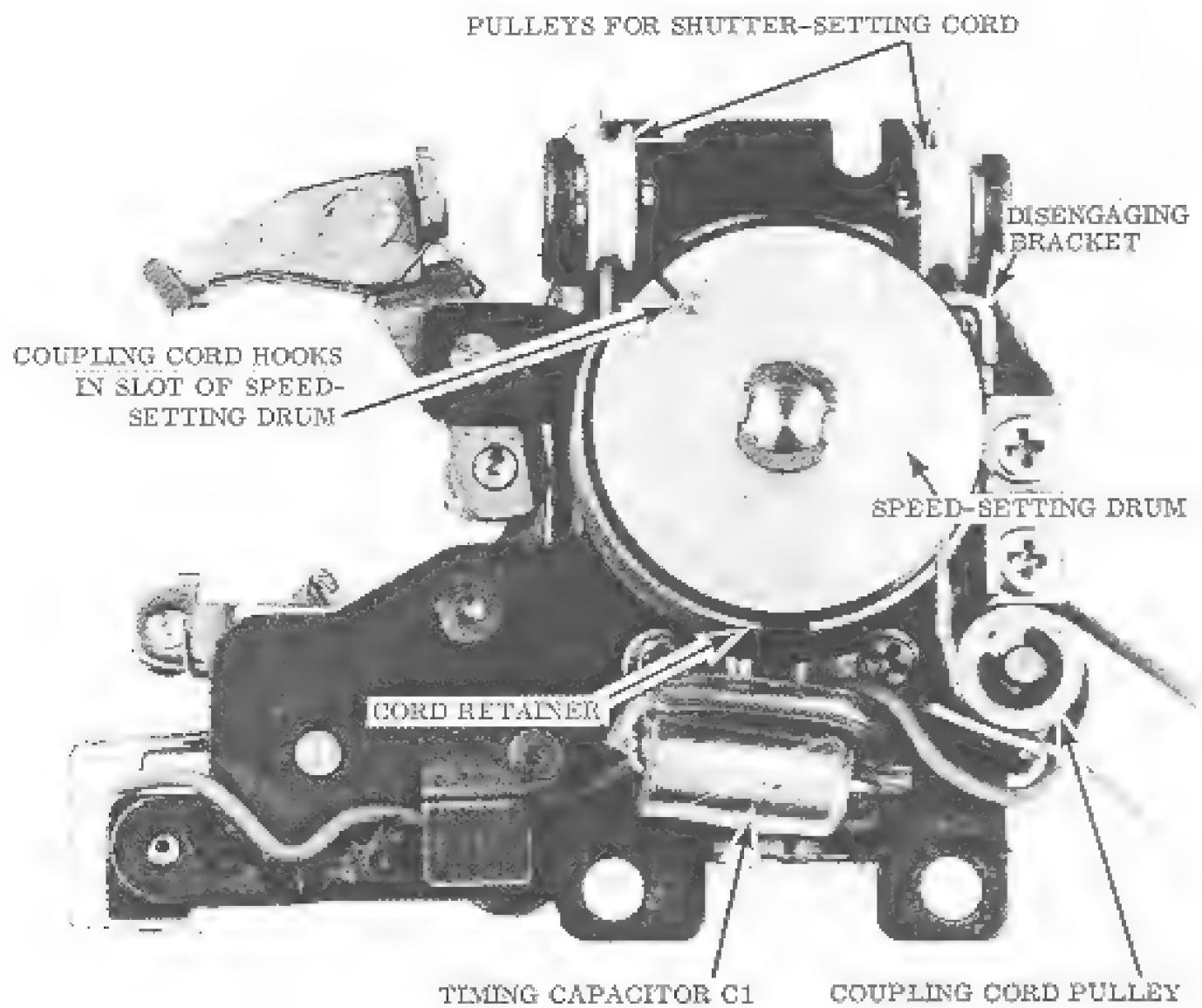
2. UNSOLDER ORANGE WIRE FROM ON-OFF SWITCH

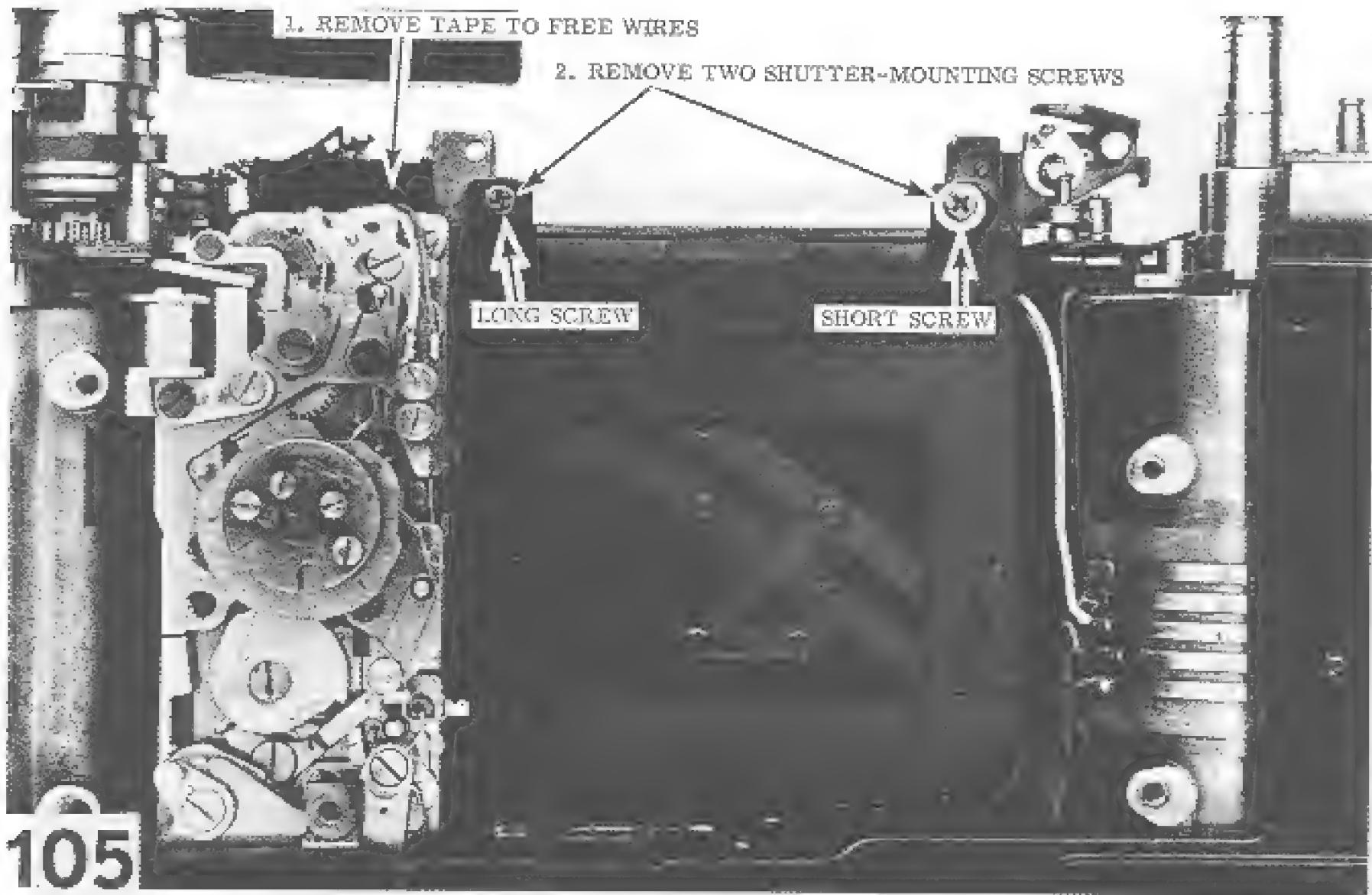


3. REMOVE TWO SCREWS AND LIFT OUT SPEED-DRUM ASSEMBLY

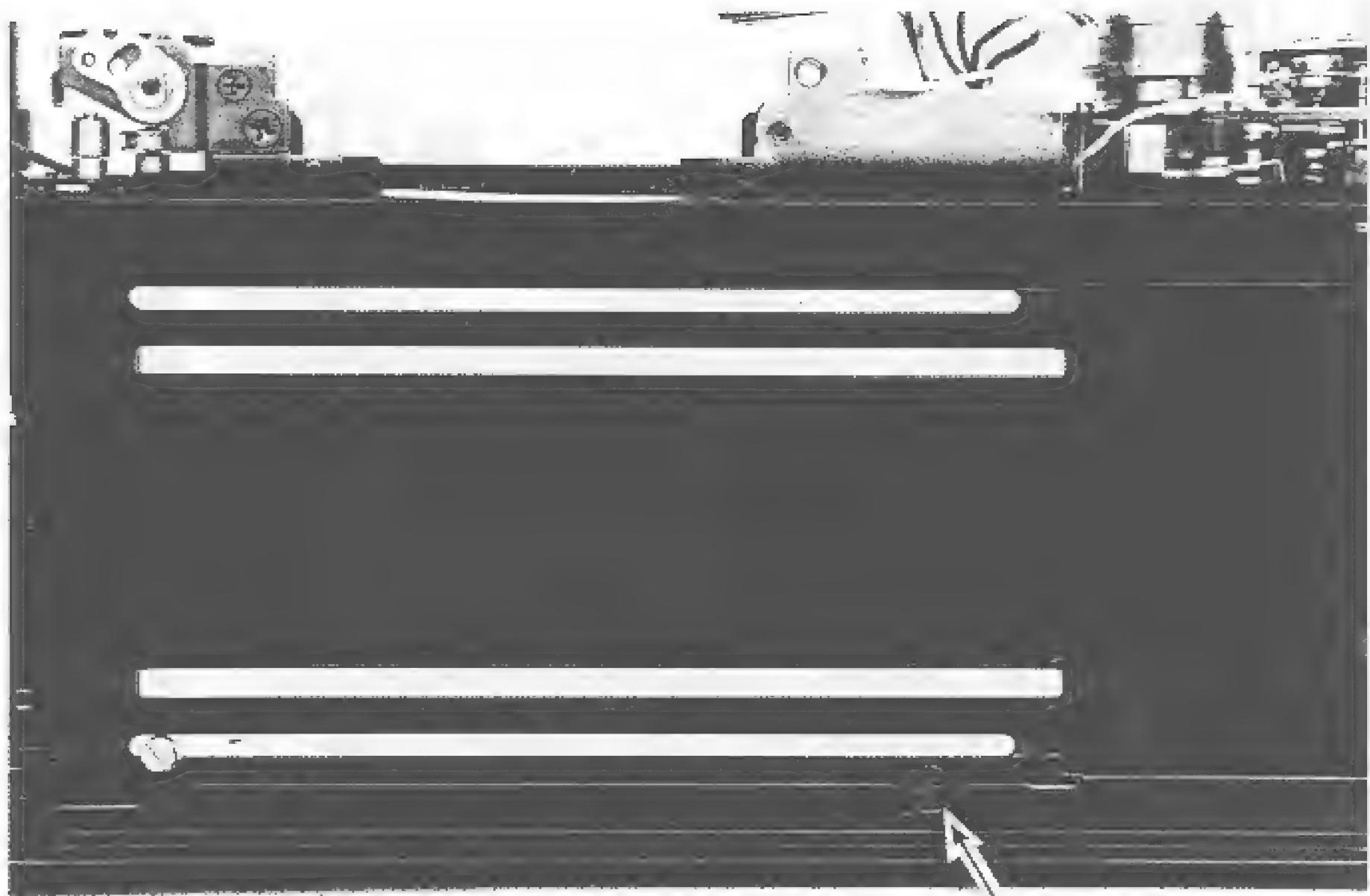
NOTE: SPEED SELECTOR DOES NOT HAVE TO BE REMOVED - WE'VE REMOVED IT HERE FOR
ILLUSTRATION PURPOSES







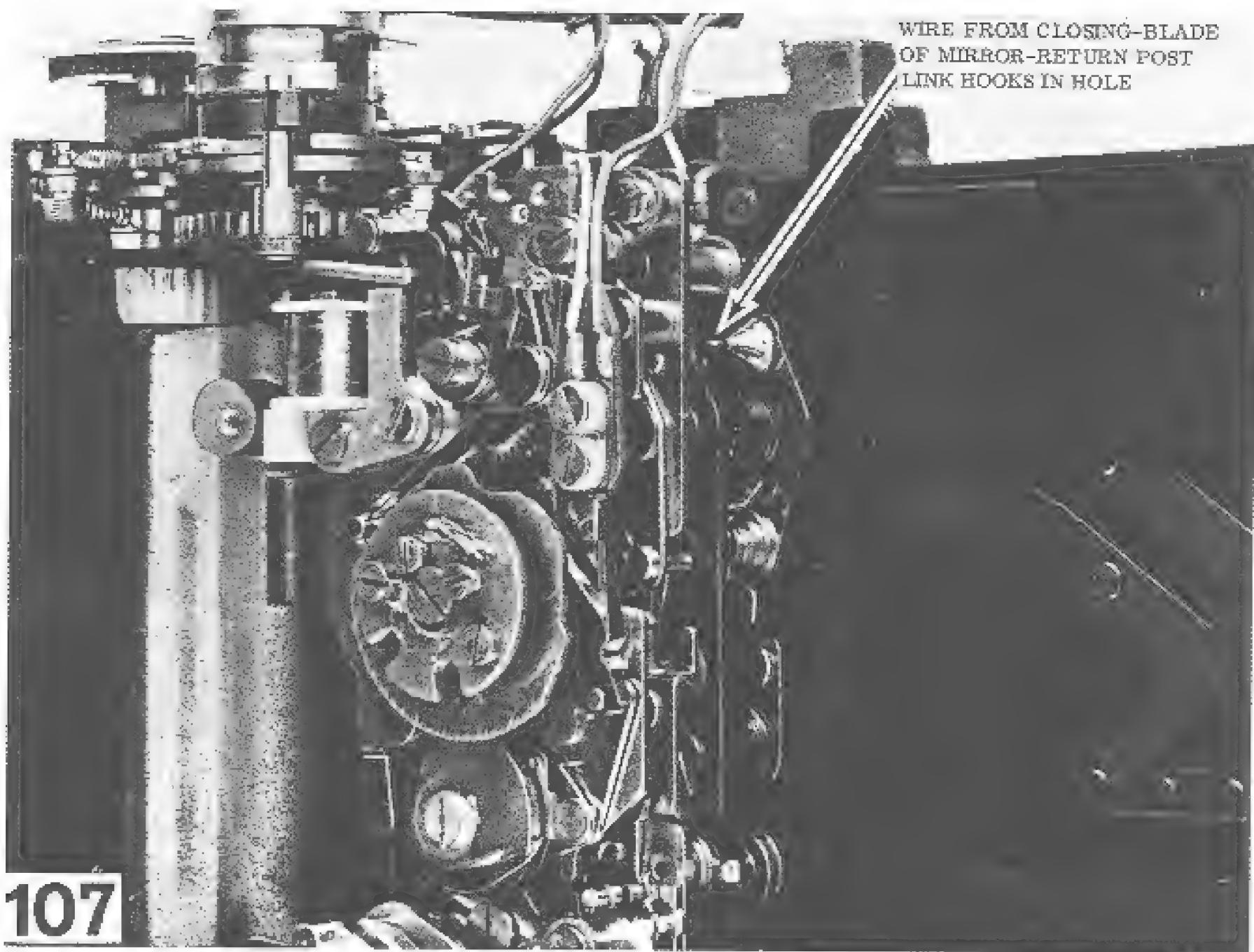
105



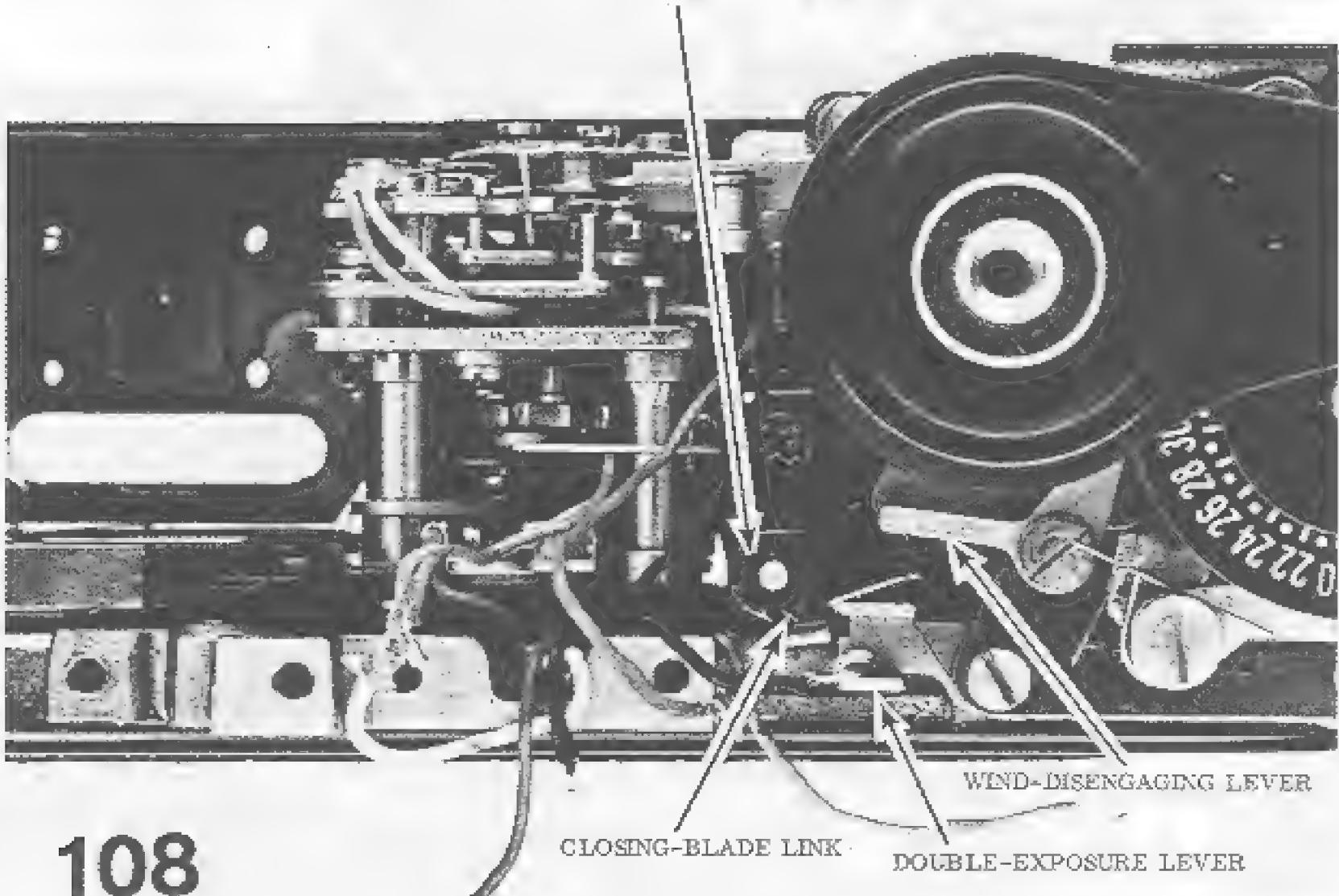
106

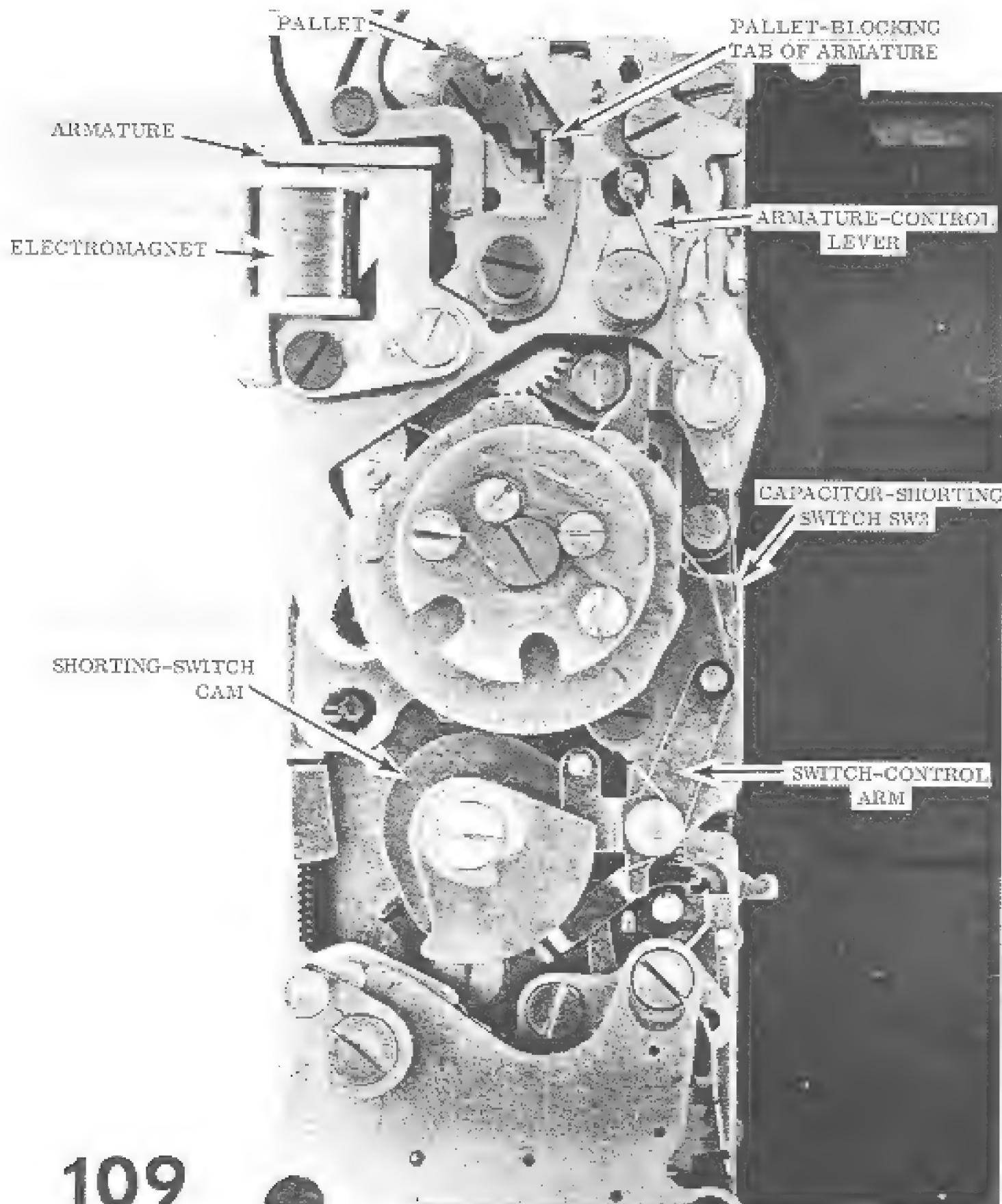
REMOVE REAR SHUTTER-MOUNTING SCREW

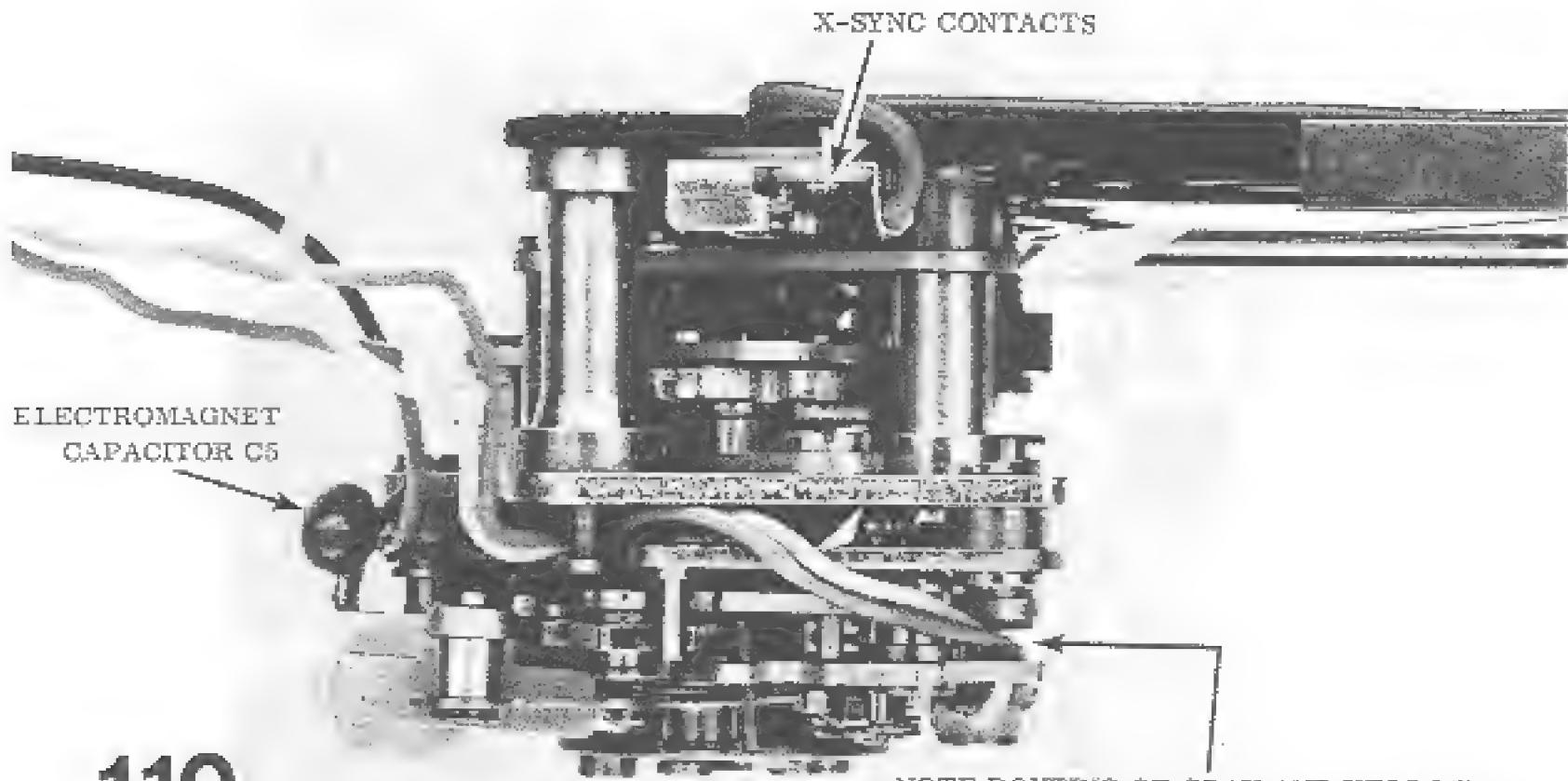
WIRE FROM CLOSING-BLADE
OF MIRROR-RETURN POST
LINK HOOKS IN HOLE



REMOVE E-RING AND LIFT OFF CLOSING-BLADE
LINK AS YOU LIFT OUT SHUTTER







110

NOTE ROUTING OF GRAY AND YELLOW
WIRES FROM CAPACITOR-SHORTING SWITCH

modification



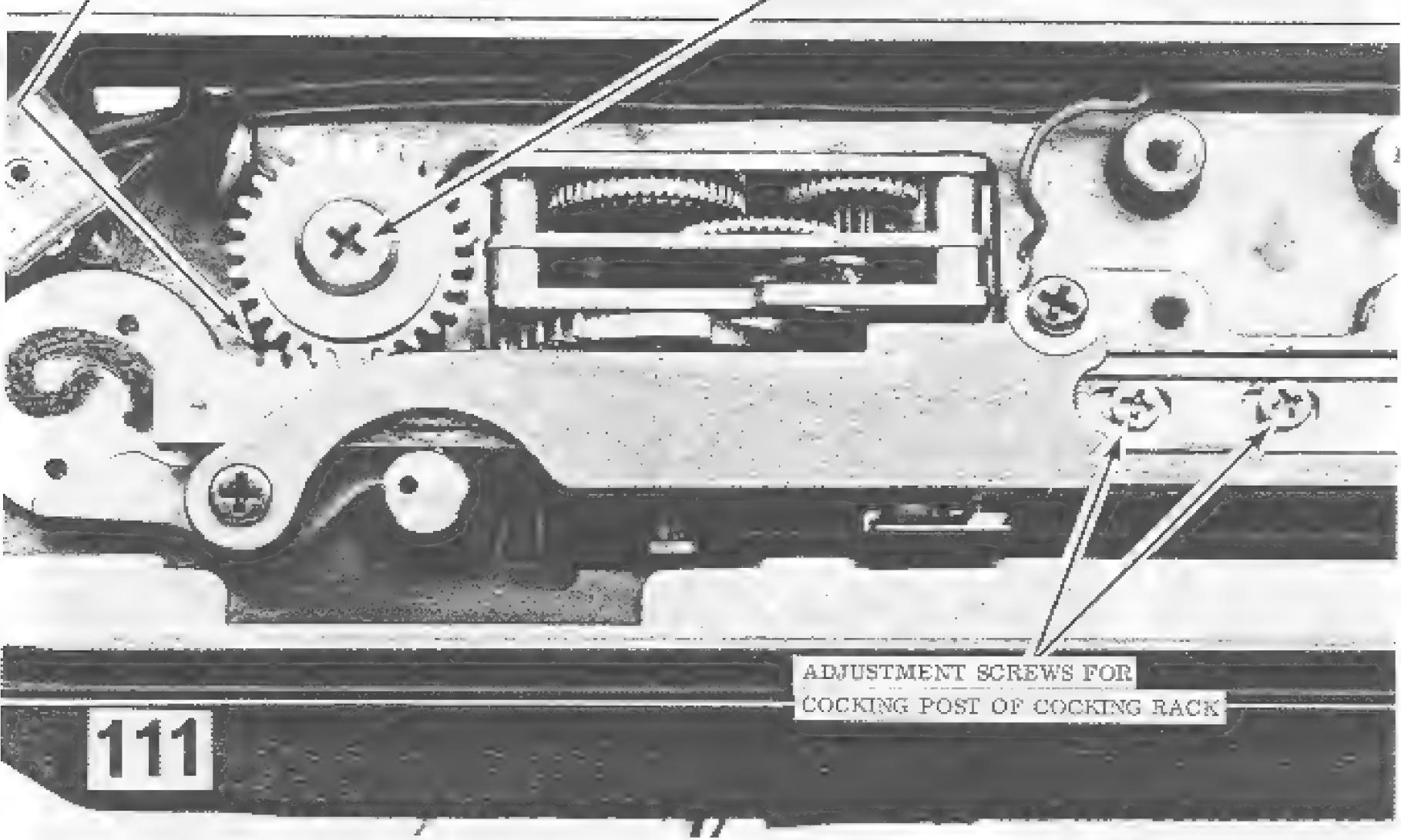
0.1 μ F

ENGAGEMENT OF COCKING RACK WITH
WIND-SHAFT GEAR -- 7 1/2 TO 8 TEETH

LEFT-HAND SCREW

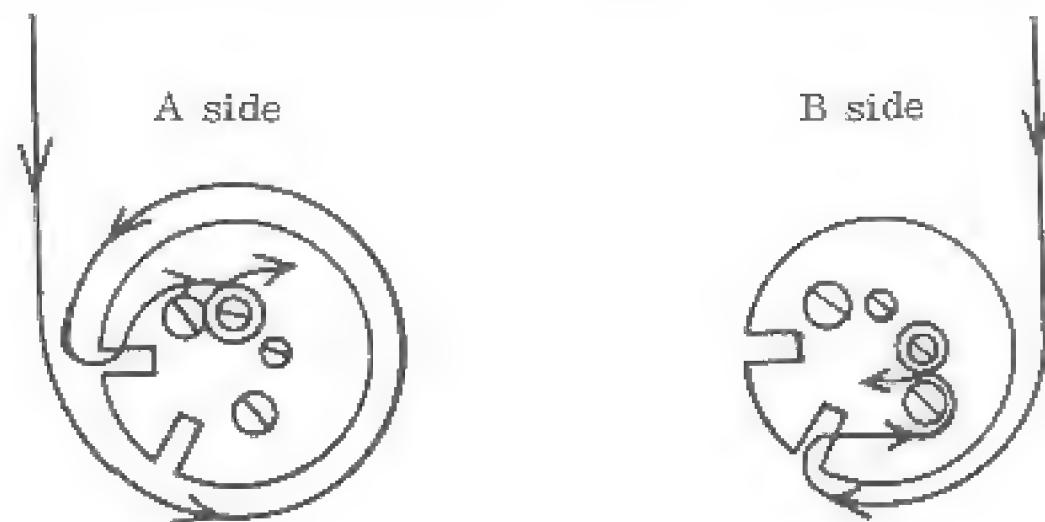
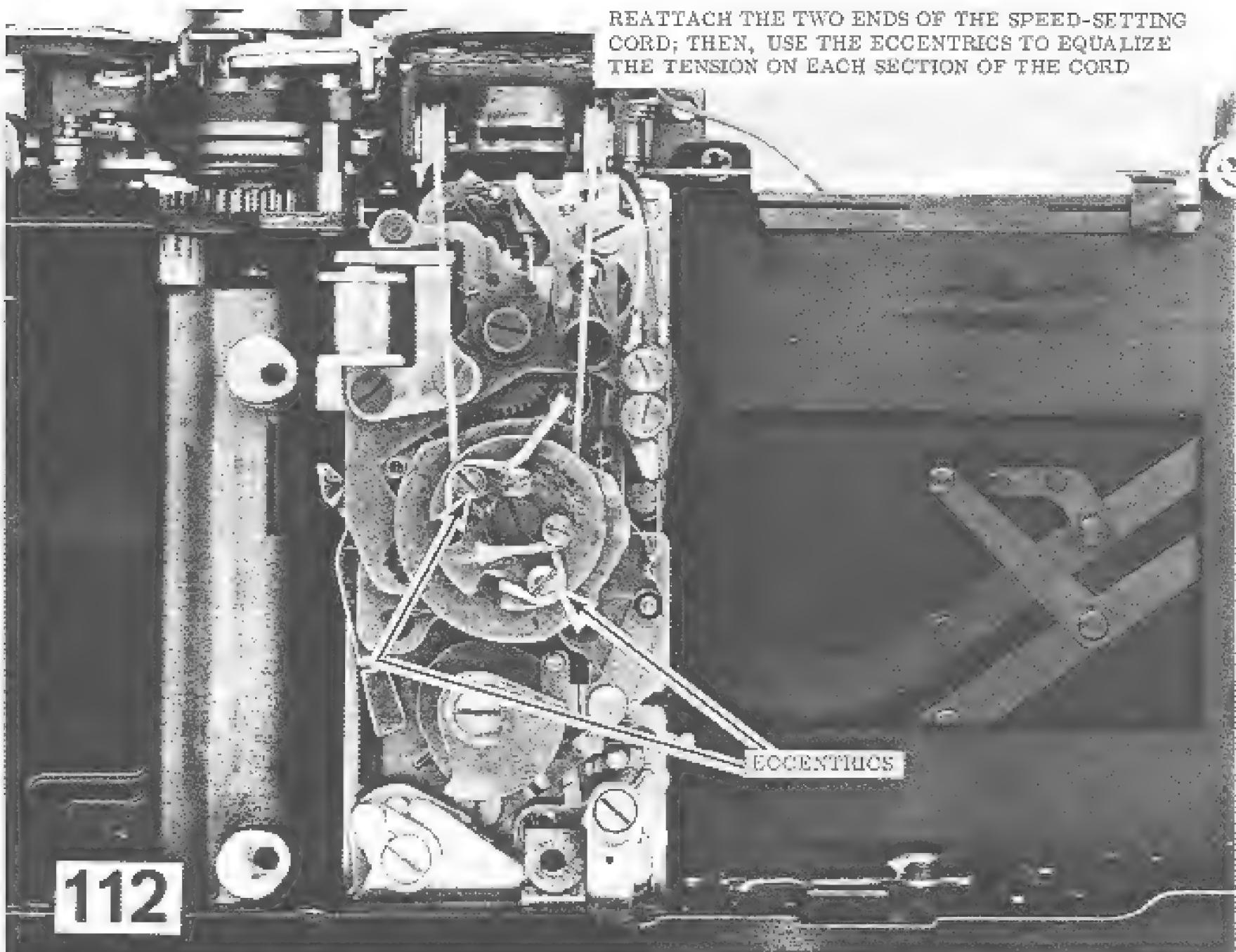
ADJUSTMENT SCREWS FOR
COCKING POST OF COCKING RACK

111

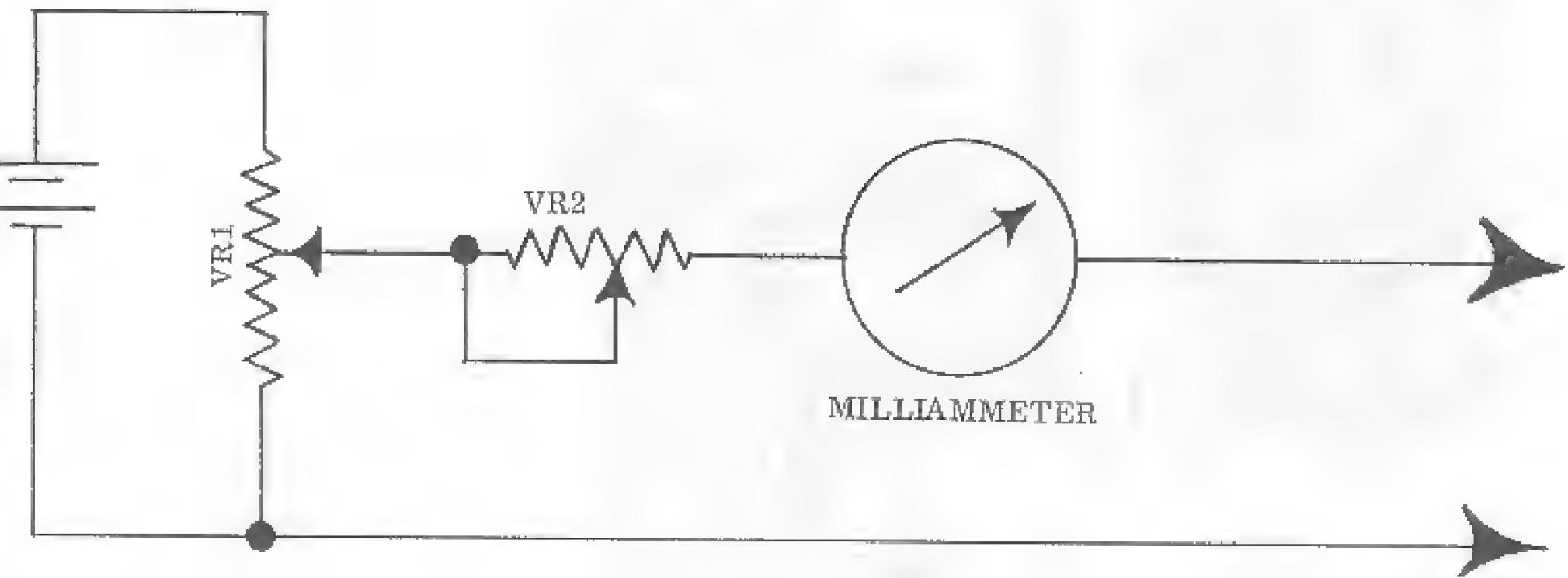


If shutter doesn't cock or advance won't come back Take off left hand screw, take off gear + replace 18° made by tooth adjustment

REATTACH THE TWO ENDS OF THE SPEED-SETTING CORD; THEN, USE THE ECCENTRICS TO EQUALIZE THE TENSION ON EACH SECTION OF THE CORD

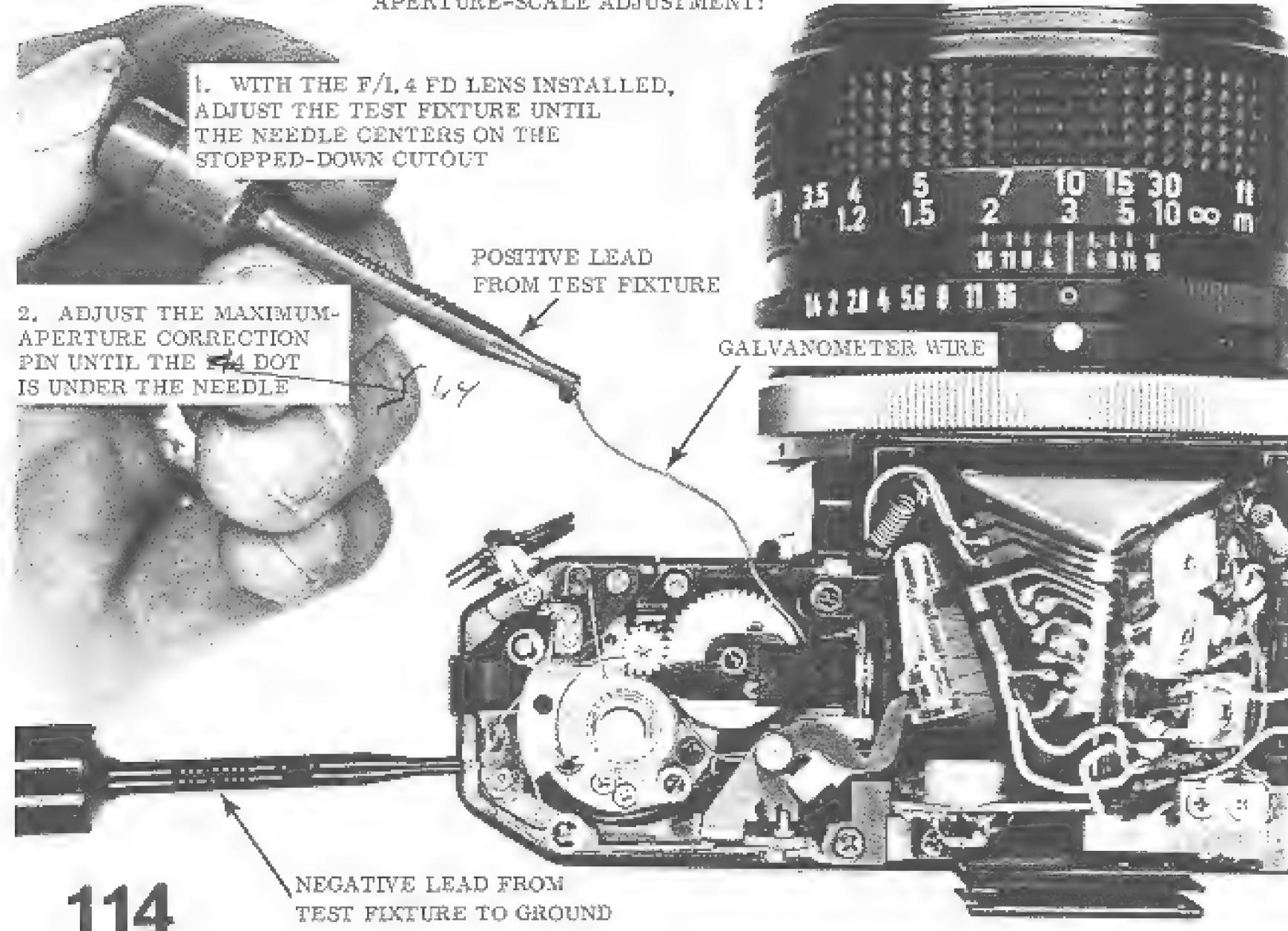


Set at 50%



113

APERTURE-SCALE ADJUSTMENT:



1. adjust aperture scale
maximum aperture &
position of metering sensor

2. Mount film speed gear dent

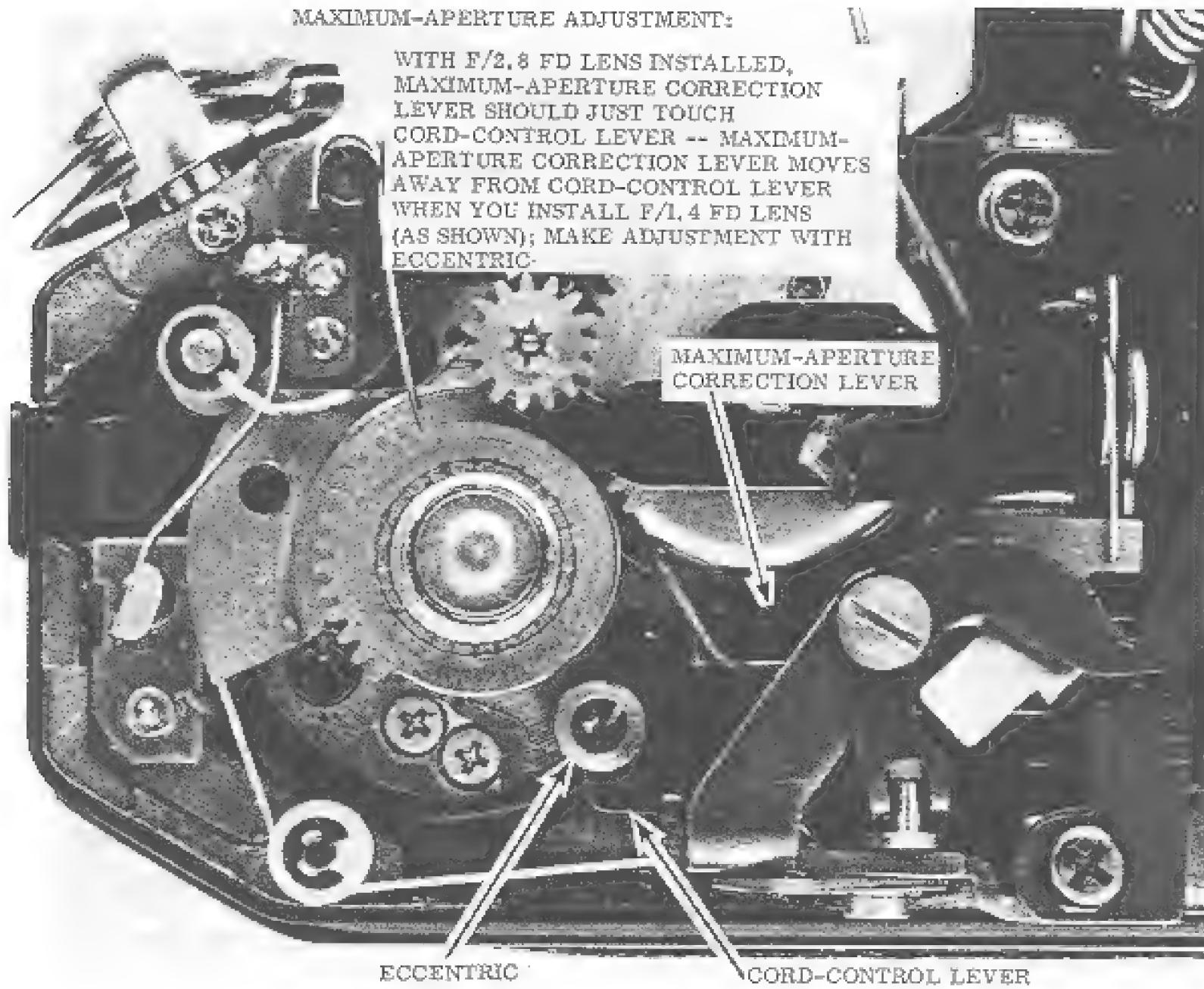
3. " " Cds circuit

4. " " Diaphragm opening

break motor
soon when
you turn pen
forwards

MAXIMUM-APERTURE ADJUSTMENT:

WITH F/2.8 FD LENS INSTALLED,
MAXIMUM-APERTURE CORRECTION
LEVER SHOULD JUST TOUCH
CORD-CONTROL LEVER -- MAXIMUM-
APERTURE CORRECTION LEVER MOVES
AWAY FROM CORD-CONTROL LEVER
WHEN YOU INSTALL F/1.4 FD LENS
(AS SHOWN); MAKE ADJUSTMENT WITH
ECCENTRIC.



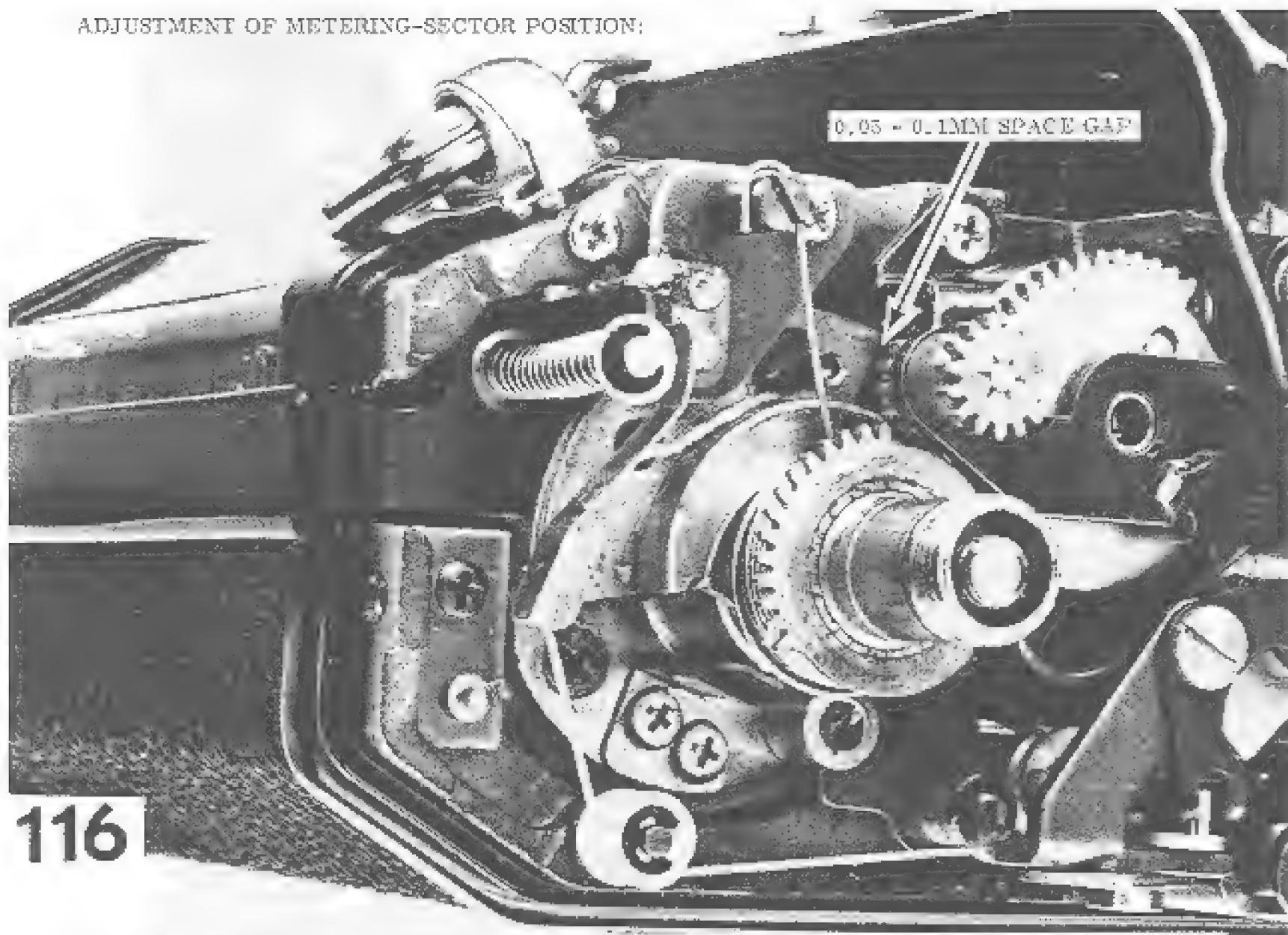
115

adjust maximum aperture

lens on set for 2.8 lens



ADJUSTMENT OF METERING-SECTOR POSITION:

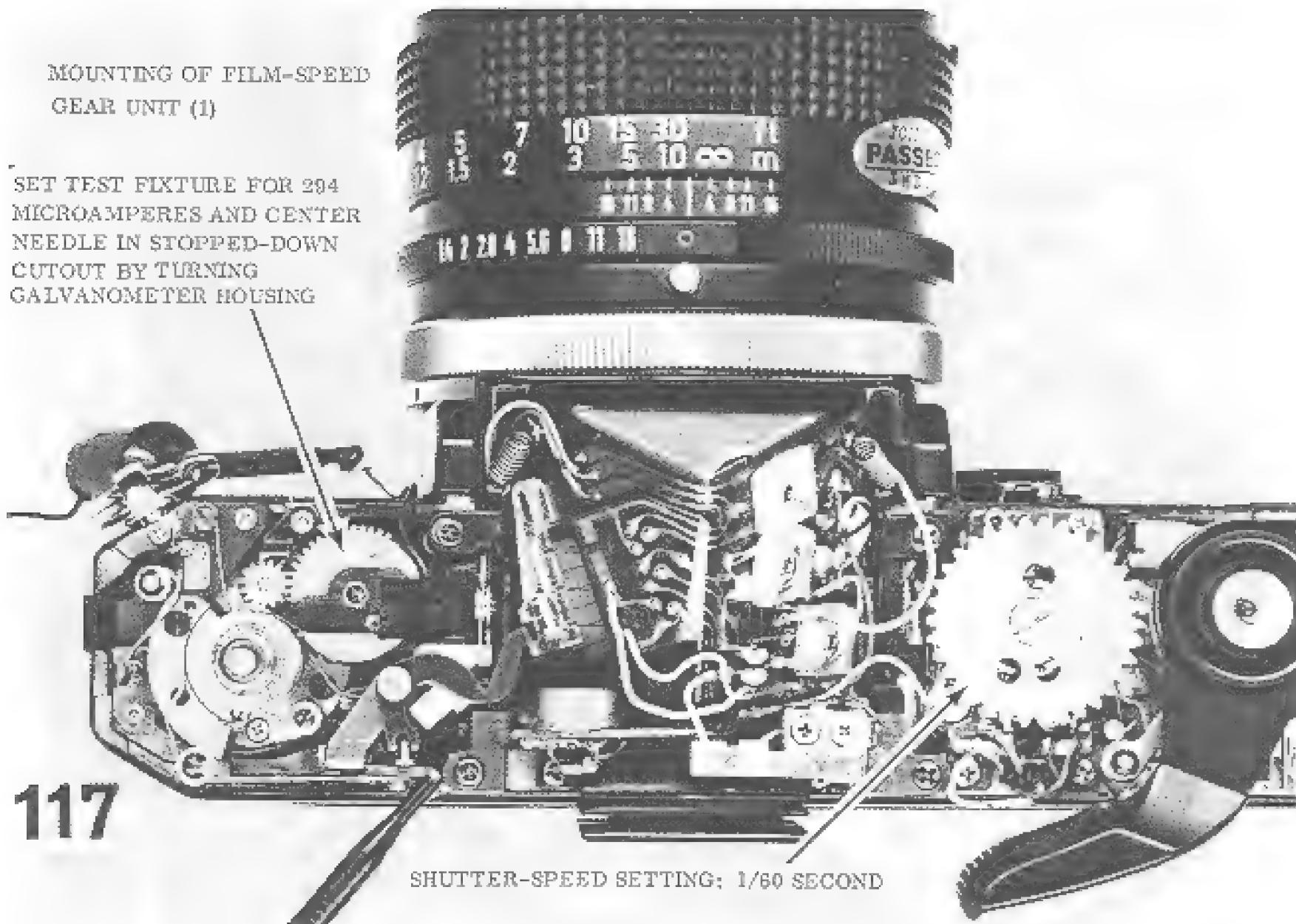


WITH THE SHUTTER SET TO "BULB," ADJUST THE POSITION OF THE METERING SECTOR WITH THE COUPLING CORD

adjust position of metering sector

MOUNTING OF FILM-SPEED
GEAR UNIT (1)

SET TEST FIXTURE FOR 294
MICROAMPERES AND CENTER
NEEDLE IN STOPPED-DOWN
CUTOUT BY TURNING
GALVANOMETER HOUSING



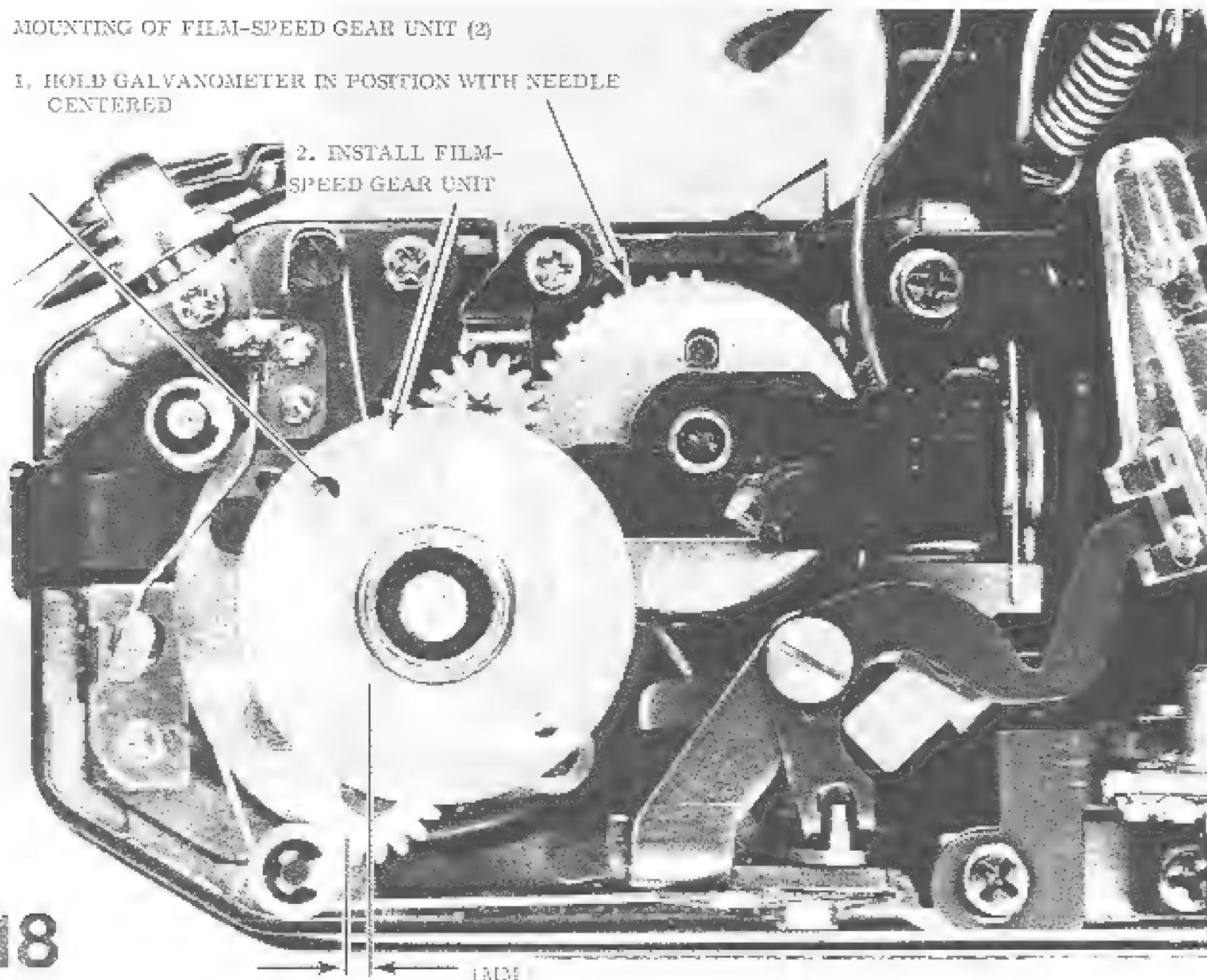
SHUTTER-SPEED SETTING: 1/60 SECOND

mount film speed gear unit

MOUNTING OF FILM-SPEED GEAR UNIT (2)

1. HOLD GALVANOMETER IN POSITION WITH NEEDLE CENTERED

2. INSTALL FILM-SPEED GEAR UNIT



118

Mounting of film speed gear unit

724 1000 134 12 200

Handwritten notes:

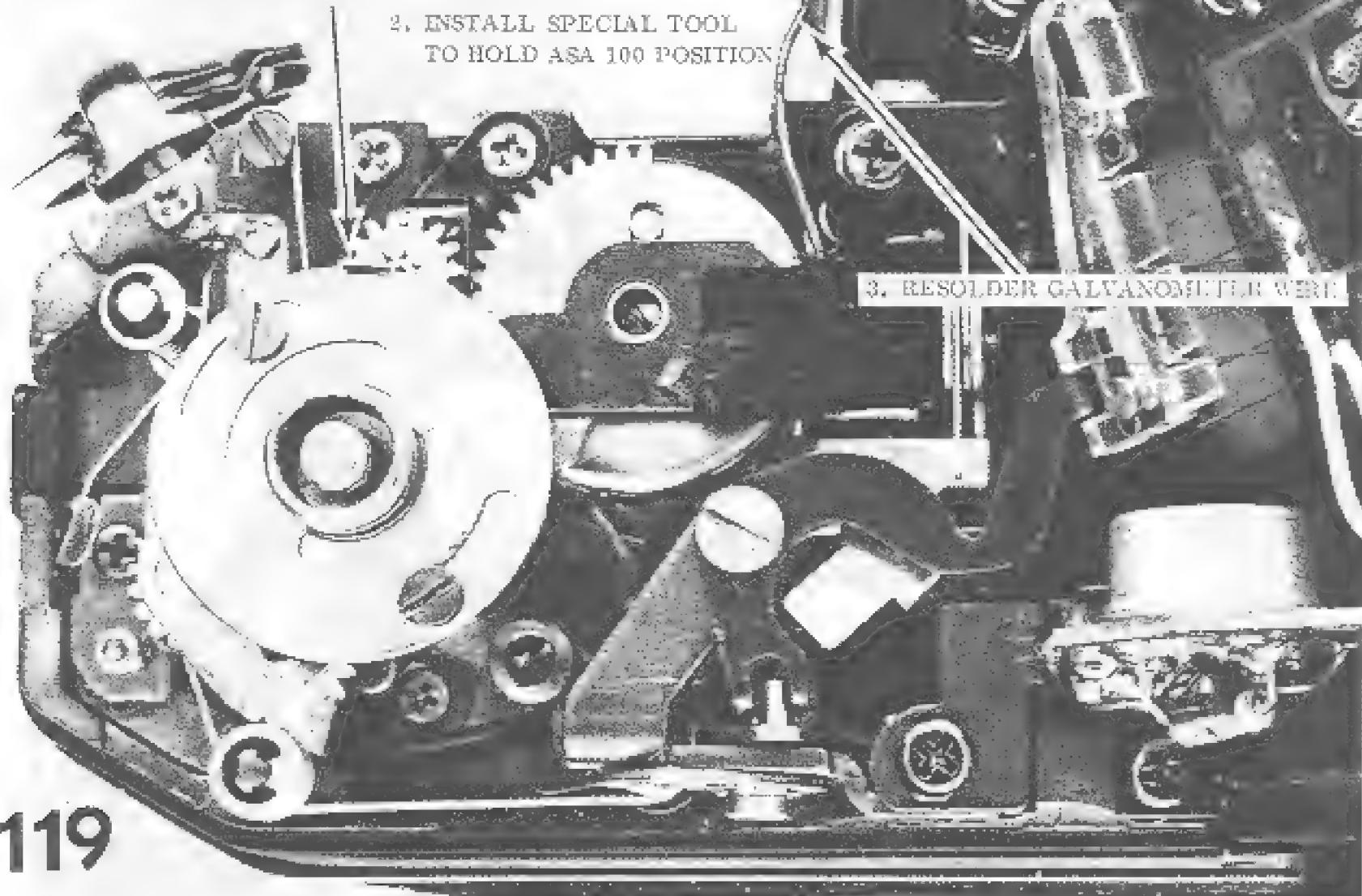
12 200

MOUNTING OF FILM-SPEED GEAR UNIT (3)

1. REPLACE FILM-SPEED COUPLER WITH TAB
FACING FRONT OF CAMERA

2. INSTALL SPECIAL TOOL
TO HOLD ASA 100 POSITION

3. RESOLDER GALVANOMETER WIRE

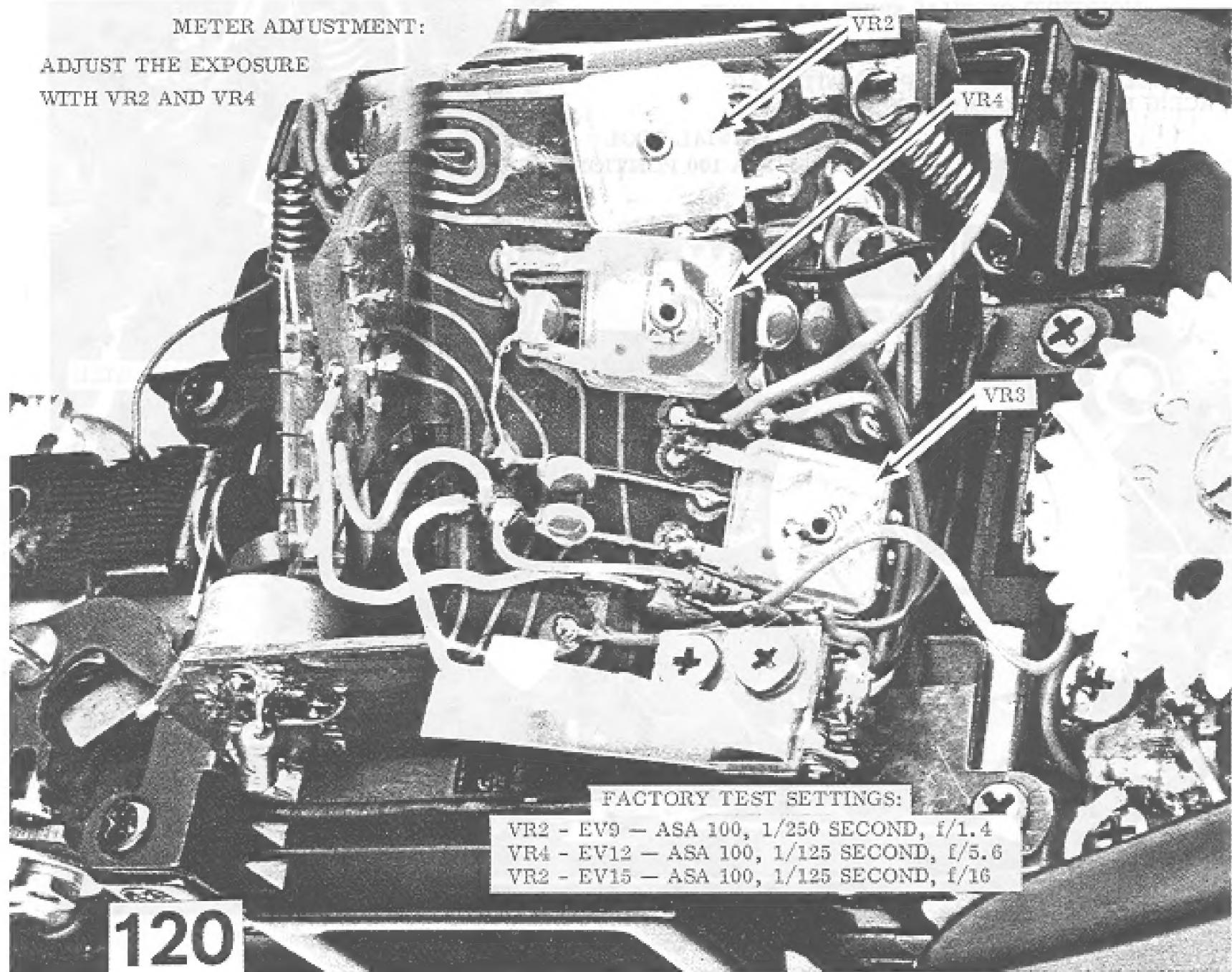


119

Mount film speed gear unit

METER ADJUSTMENT:

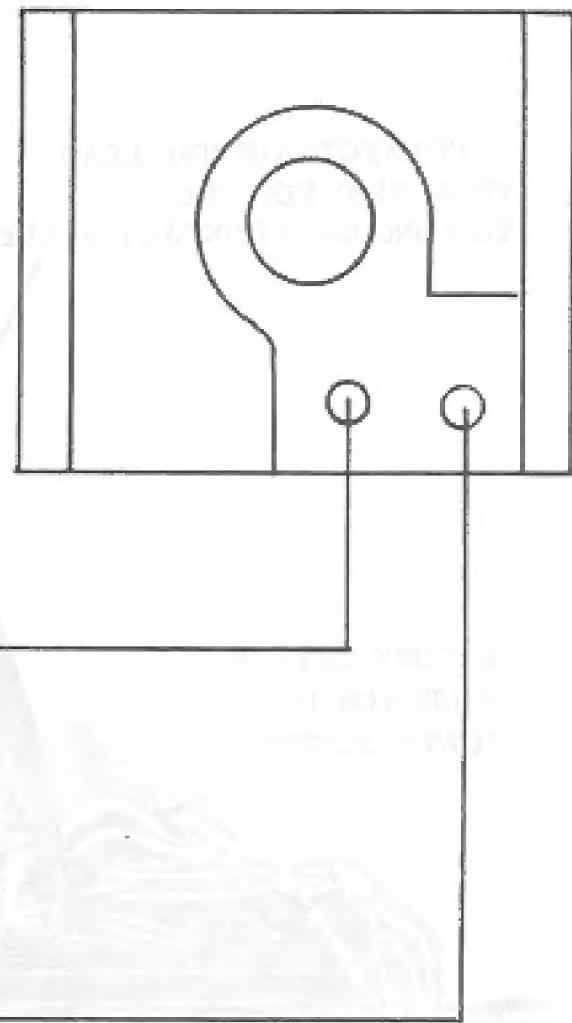
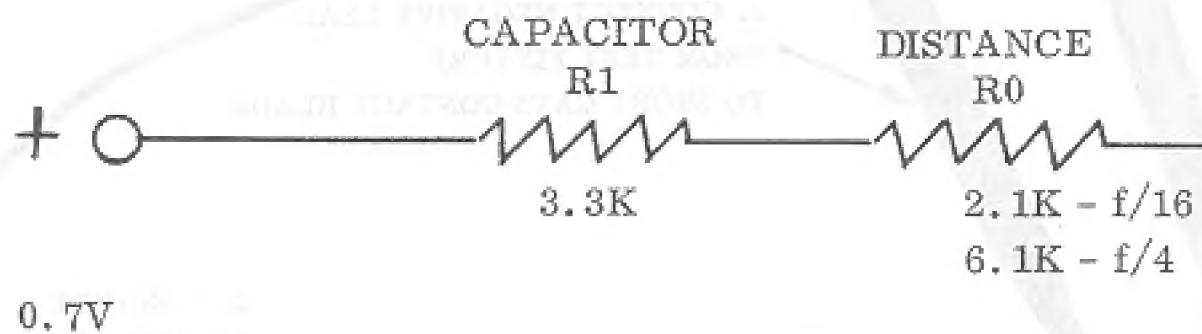
ADJUST THE EXPOSURE
WITH VR2 AND VR4



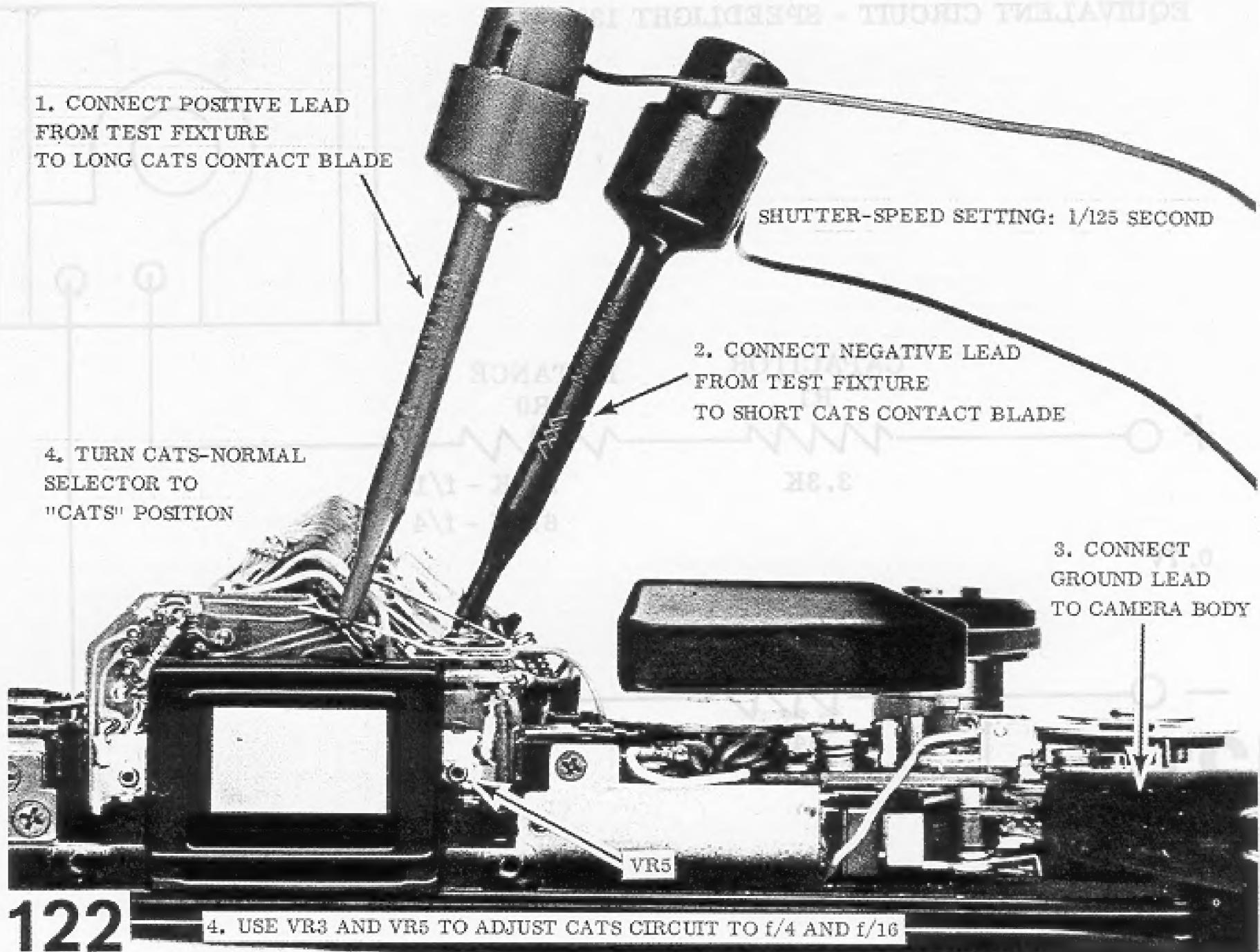
FACTORY TEST SETTINGS:

VR2 - EV9 — ASA 100, 1/250 SECOND, f/1.4
VR4 - EV12 — ASA 100, 1/125 SECOND, f/5.6
VR2 - EV15 — ASA 100, 1/125 SECOND, f/16

EQUIVALENT CIRCUIT - SPEEDLIGHT 133D



121



122

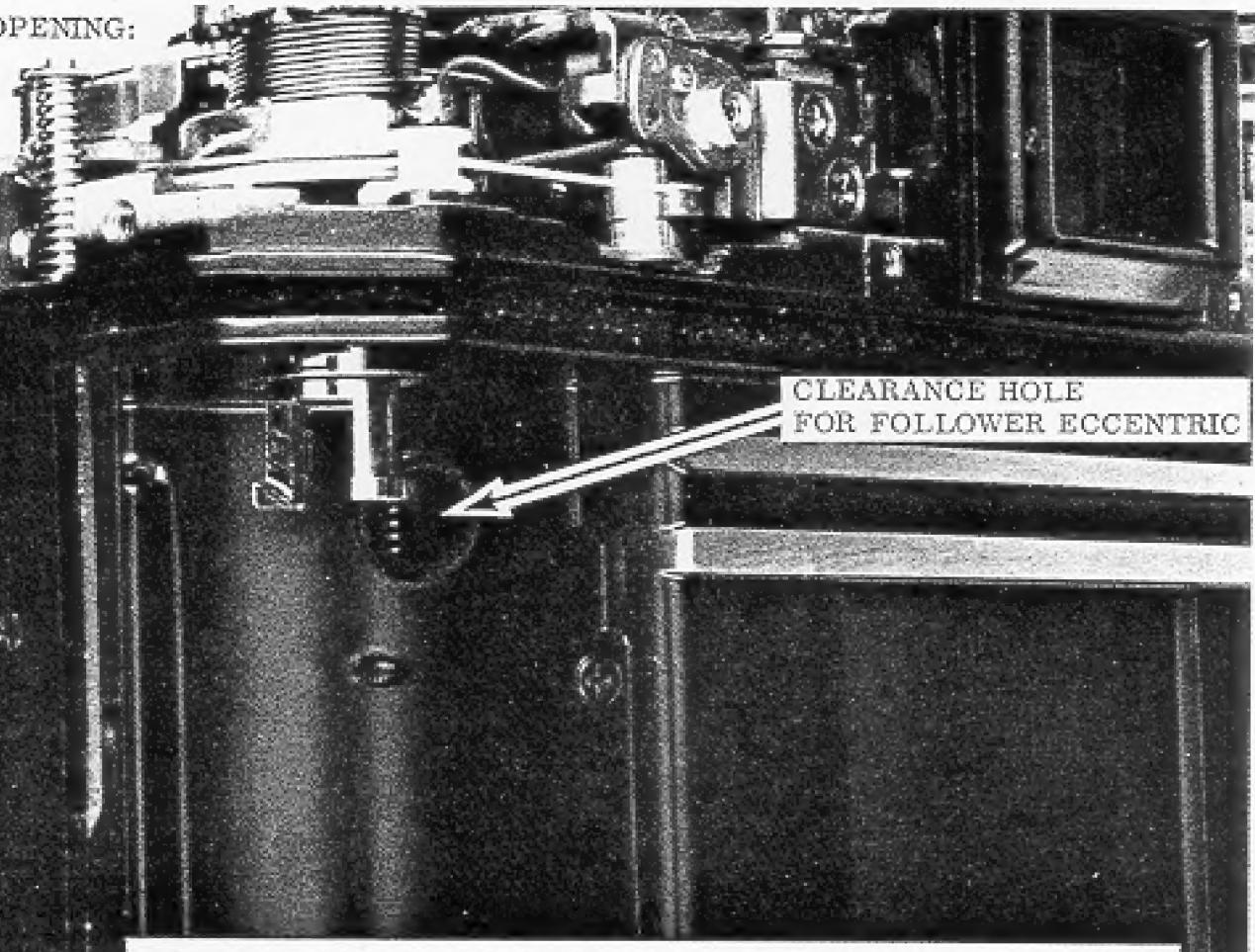
adjust cats circuit

VR3 - level adj +4

VR5 - slope adj +10

ADJUSTMENT OF DIAPHRAGM OPENING:

1. REMOVE THE CEMENTED COVER DISC OVER THE FOLLOWER-ECCENTRIC CLEARANCE HOLE



2. CHECK THE DIAPHRAGM OPENING WITH AN EV TESTER -- ADJUST THE DIAPHRAGM OPENING WITH THE FOLLOWER ECCENTRIC

adjust diaphragm opening